FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with "A++" Grade by NAAC (4th Cycle)
Maryland, Madurai- 625 018, Tamil Nadu, India

NAME OF THE DEPARTMENT : INFORMATION TECHNOLOGY

NAME OF THE PROGRAMME : B. Sc.

PROGRAMME CODE   **: USIT**

ACADEMIC YEAR   **: 2023-24**

VISION OF THE DEPARTMENT

The vision is to be the center of excellence in training the students in Information Technology to excel both as a professional and as a human in the society.

MISSION OF THE DEPARTMENT

- ∮ Empower women by teaching them technology and life lessons.

- ∮ Encourage students to be the change in the society.

- ∮ Educate students and prepare them in various aspects of IT industry.

- ∮ Provide leadership quality for effective strategic and tactical planning in use of technology.

- ∮ Instill the power of faith and hope so they could be the blessing to their next generation.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

A graduate of B.Sc.ITprogramme after five years will be

PEO 1	Our graduates will be academic, digital and information literates, creative, inquisitive, innovative and desirous for the "more" in all aspects
PEO 2	They will be efficient individual and team performers, exhibiting progress, flexibility, transparency and accountability in their professional work
PEO 3	The graduates will be effective managers of all sorts of real – life and professional circumstances, making ethical decisions, pursuing excellence within the time framework and demonstrating apt leadership skills

PEO 4	They will engage locally and globally evincing social and environmental stewardship demonstrating civic responsibilities and employing right skills at the right moment.

GRADUATE ATTRIBUTES (GA)

Fatima College empowers her women graduates holistically. A Fatimite achieves all-round empowerment by acquiring Social, Professional and Ethical competencies. A graduate would sustain and nurture the following attributes:

I. SOCIAL COMPETENCE	
GA 1	Deep disciplinary expertise with a wide range of academic and digital literacy
GA 2	Hone creativity, passion for innovation and aspire excellence
GA 3	Enthusiasm towards emancipation and empowerment of humanity
GA 4	Potentials of being independent
GA 5	Intellectual competence and inquisitiveness with problem solving abilities befitting the field of research
GA 6	Effectiveness in different forms of communications to be employed in personal and professional environments through varied platforms
GA 7	Communicative competence with civic, professional and cyber dignity and decorum
GA 8	Integrity respecting the diversity and pluralism in societies, cultures and religions
GA 9	All – inclusive skill sets to interpret, analyse and solve social and environmental issues in diverse

	environments
GA 10	Self awareness that would enable them to recognise their uniqueness through continuous self-assessment in order to face and make changes building on their strengths and improving their weaknesses
GA 11	Finesse to co-operate exhibiting team-spirit while working in groups to achieve goals
GA 12	Dexterity in self-management to control their selves in attaining the kind of life that they dream for
GA 13	Resilience to rise up instantly from their intimidating setbacks
GA 14	Virtuosity to use their personal and intellectual autonomy in being life-long learners
GA 15	Digital learning and research attributes
GA 16	Cyber security competence reflecting compassion, care and concern towards the marginalised
GA 17	Rectitude to use digital technology reflecting civic and social responsibilities in local, national and global scenario
II. PROFESSIONAL COMPETENCE	
GA 18	Optimism, flexibility and diligence that would make them professionally competent
GA 19	Prowess to be successful entrepreuners and become employees of trans-national societies
GA 20	Excellence in Local and Global Job Markets
GA 21	Effectiveness in Time Management
GA 22	Efficiency in taking up Initiatives
GA 23	Eagerness to deliver excellent service
GA 24	Managerial Skills to Identify, Commend and tap

	Potentials
	III. ETHICAL COMPETENCE
GA 25	Integrity and be disciplined in bringing stability leading a systematic life promoting good human behaviour to build better society
GA 26	Honesty in words and deeds
GA 27	Transparency revealing one's own character as well as self-esteem to lead a genuine and authentic life
GA 28	Social and Environmental Stewardship
GA 29	Readiness to make ethical decisions consistently from the galore of conflicting choices paying heed to their conscience
GA 30	Right life skills at the right moment

PROGRAMME OUTCOMES (PO)

The learners will be able to

PO 1	Apply acquired scientific knowledge to solve complex issues.
PO 2	Attain Analytical skills to solve complex cultural, societal and environmental issues.
PO 3	Employ latest and updated tools and technologies to analyse complex issues.
PO 4	Demonstrate Professional Ethics that foster Community, Nation and EnvironmentBuilding Initiatives.

PROGRAMME SPECIFIC OUTCOMES (PSO)

On completion of B.Sc. Information TechnologyProgramme, the graduates would be able to

PSO 1	Apply computational techniques and software principles for designing of software systems.
PSO 2	Develop efficient and effective software systems using modern computer techniques.
PSO 3	Acquire fundamental concepts, methods and practices of Information Technology to develop theoretical and practical skill sets.
PSO 4	Justify the optimum technique to allocate memory resources, processors, I/O peripherals to provide optimal programmatic solution to a real world problem.
PSO 5	Support to gain skills on basic as well as trendy software languages and packages to design web sites, web apps, mobile apps and real time software projects.
PSO 6	Promote the students to generalize and distinguish the characters of different systems for different environment.
PSO 7	Trigger the students to enroll in to the research areas of IT industry like cloud computing and data analytics.
PSO 8	Able to become entrepreneur and to pursue career in IT industries.

FATIMA COLLEGE (AUTONOMOUS), MADURAI-18
DEPARTMENT OF INFORMATION TECHNOLOGY

PROGRAMME CODE : USIT

PART – III -MAJOR, ALLIED & ELECTIVES

S.NO	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. Mks
1.		23I1CC1	PROGRAMMING IN C	5	4	40	60	100
2.	I	23I1CC2	C PROGRAMMING PRACTICAL	5	5	40	60	100
3.		23I1FC	FUNDAMENTALS OF COMPUTER	2	2	40	60	100
4.		23I2CC3	JAVA PROGRAMMING	5	5	40	60	100
5.	II	23I2CC4	JAVA PROGRAMMING & DATA STRUCTURES PRACTICAL	5	5	40	60	100
6.		23I2SE3	AUTOMATION SKILLS	2	2	40	60	100
7.	III	19I3CC5	DATABASE MANAGEMENT SYSTEM	6	4	40	60	100
8.		19I3CC6	LAB III - RDBMS	6	3	40	60	100
9.	IV	22I4CC7	PROGRAMMING IN JAVA	6	4	40	60	100
10.		22I4CC8	LAB IV - JAVA PROGRAMMING	6	3	40	60	100
11.	V	23I5CC9	.NET	5	5	40	60	100

S.NO	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. Mks
			PROGRAMMING					
12.		23I5CC10	LAB V - .NET PROGRAMMING	6	3	40	60	100
13.		19I5CC11	SOFTWARE ENGINEERING	5	3	40	60	100
14.		19I5CC12	OPERATING SYSTEM	5	5	40	60	100
15.		23I6CC13	PYTHON PROGRAMMING	5	5	40	60	100
16.		23I6CC14	LAB VI - PYTHON PROGRAMMING	6	3	40	60	100
17.	VI	19I6CC15	DATA COMMUNICATION AND NETWORKING	5	5	40	60	100
18.		21I6PR	PROJECT	--	3	40	60	100

ALLIEDCOURSES

S.NO	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. MKs
1.	I	23G1GEI1	DISCRETE MATHEMATICS	5	5	40	60	100
2.	II	23G2GEI2	OPERATIONS RESEARCH	5	5	40	60	100
3.	III	21P3ACI3	DIGITAL PRINCIPLES AND COMPUTER ARCHITECTURE	5	5	40	60	100
4.	IV	21AC4ACI4	ACCOUNTING IN DECISION MAKING	5	5	40	60	100

ELECTIVES

S.No	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. Mks
1.	V	19I5ME1/19I5ME2	DATA MINING/NETWORK SECURITY	5	5	40	60	100
2.	VI	22I6ME3/ 21I6ME4	CLOUD TECHNOLOGY/ MOBILE COMMUNICATION	5	5	40	60	100
3.		19I6ME5/ 19I6ME6	INFORMATION STORAGE AND MANAGEMENT /COMPUTER GRAPHICS	5	5	40	60	100

PART – IV

- **VALUE EDUCATION**
- **ENVIRONMENTAL AWARENESS**
- **NON MAJOR ELECTIVE**
- **SKILL BASED COURSES**

S.No	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. Mks
1.	I	23G1VE	Value Education (Including Meditation in Action Movement)	1	1	40	60	100
2.		23I1SE1	Non Major Elective–Office Automation (Offered to other major Students)	2	2	40	60	100

S. No	SEM.	COURSECODE	COURSE TITLE	HRS	CREDIT	CIA Mks	ESE Mks	TOT. Mks
3.	II	23G2VE	Value Education	1	1	40	60	100
4.	II	23I2SE2	Non Major Elective – Multimedia Lab (Offered to other major Students)	2	2	40	60	100
5.	III	21G3EE	Environmental Studies	1	1	40	60	100
6.	III	22I3SB1	Skill based– Excel using VBA	2	2	40	60	100
7.	IV	21G4GS	Gender Studies	1	1	40	60	100
8.	IV	19I4SB2	Skill based - Analytical Skills	2	2	40	60	100
9.	V	23I5SB3	Skill based – Basics of HTML5	2	2	40	60	100
10.	V	23I5SB4	Skill based – Web Programming using PHP	2	2	40	60	100
11.	VI	23I6SB5	Skill based – Advanced HTML5	2	2	40	60	100
12.	VI	23I6SB6	Skill based –Fundamentals of Android Programming	2	2	40	60	100

PART – V – 1 CREDIT

OFF-CLASS PROGRAMMES - ALL PART-V

SHIFT - II

S. No	SEM.	COURSE CODE	COURSE TITLE	HRS	CREDIT	TOT. Mks
1.	I - IV	21S4PED	Physical Education	30/ SEM	1	100
2.		21S4YRC	Youth Red Cross			
3.		21S4NSS	NSS			
4.		21S4RTC	Rotaract			
5.		21S4WEC	Women Empowerment Cell			

6.		21S4ACUF	AICUF			

OFF-CLASS PROGRAMME

ADD-ON COURSES

COURSE CODE	Courses	Hrs.	Credits	Semester in which the course is offered	CIA Mks	ESE Mks	Total Marks
21UAD2CA	**COMPUTER APPLICATIONS**	40	2	I&II	40	60	100
	ONLINE SELF LEARNING COURSE-Foundation Course for Arts	40	3	I	50	-	50
	ONLINE SELF LEARNING COURSE-Foundation Course for Science	40	3	II	50	-	50
	ETHICAL STUDIES-Value Education	15	2	III-VI	50 each Semester	-	100
	HUMAN RIGHTS	15	2	V	-	-	100
	OUTREACH PROGRAMME-Reach Out to Society through Action**ROSA**	100	3	V & VI	-	-	100
	PROJECT	30	4	VI	40	60	100
	READING	10/Seme	1	II-VI	-	-	-

COURSE CODE	Courses	Hrs.	Credits	Semester in which the course is offered	CIA Mks	ESE Mks	Total Marks
	CULTURE	ster					
	MOOC COURSES(Department Specific Courses/any other courses) * Students can opt other than the listed course from UGC-SWAYAM UGC / CEC	-	Minimum 2 Credits	-	-	-	
	TOTAL		22 +				

EXTRA CREDIT COURSES

COURSE CODE	COURSE	HRS.	CREDITS	SEMESTER IN WHICH THE COURSE IS OFFERED	CIA MKS	ESE MKS	TOTAL MARKS
21I1SLK1	**SELF LEARNING COURSES for ADVANCED LEARNERS: TRENDS IN INFORMATION TECHNOLOGY**	-	2	I	40	60	100
21I3SL1	**SELF LEARNING COURSES for ADVANCED LEARNERS: GREEN**	-	2	III	40	60	100

	COMPUTING						
21J5SLI1	SELF LEARNING COURSES for ADVANCEDLEARNERS: DATA SCIENCE & TOOLS	-	2	V	40	60	100
	MOOC COURSES / International Certified online Courses (Department Specific Courses/any other courses) * Students can opt other than the listed course from UGC-SWAYAM UGC / CEC	-	Minimum 2 Credits	I – VI	-	-	

OFF CLASS PROGRAMMES:

19UGVAI1 - Crash Course: Animation Software
23UGVA12 – Image Manipulation Tools

I B.Sc. Information Technology
SEMESTER –I
For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I1CC1	PROGRAMMING IN C	Lecture	5	4

COURSE DESCRIPTION

This course content plays a vital role in building the fundamental knowledge in programming.

COURSE OBJECTIVES

● To familiarize the students with the understanding of code organization

● To improve the programming skills

● Learning the basic programming constructs.

UNITS

UNIT –I STUDYING CONCEPTS OF PROGRAMMING LANGUAGES

(15 HRS.)

Language Evaluation Criteria - Language design - Language Categories - Implementation Methods – Programming Environments - Overview of C: History of C- Importance of C- Basic Structure of C Programs-Executing a C Program- Constants, Variables and Data types - Operators and Expressions - Managing Input and Output Operations

UNIT –II DECISION MAKING AND BRANCHING   (15 HRS.)

Decision Making and Looping - Arrays - Character Arrays and Strings

UNIT –III USER DEFINED FUNCTIONS (15 HRS.)

Elements of User Defined Functions- Definition of Functions- Return Values and their Types- Function Call- Function Declaration- Categories of Functions- Nesting of Functions-Recursion

UNIT –IV STRUCTURES AND UNIONS   (13 HRS.)

Introduction- Defining a Structure- Declaring Structure Variables Accessing Structure Members- Structure Initialization- Arrays of Structures- Arrays within Structures- Unions- Size of Structures.

UNIT –V POINTERSAND FILES   (15 HRS.)

Understanding Pointers- Accessing the Address of a Variable- Declaring Pointer Variables- Initializing of Pointer Variables- Accessing a Variable through its Pointer- Chain of Pointers- Pointer Expressions- Pointer and Scale Factor- Pointer and Arrays- Pointers and Character Strings- Array of Pointers- Pointer as Function Arguments- Functions Returning Pointers- Pointers to Functions- **File Management in C**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (2HRS.)

Advanced Concepts in C.

TEXT BOOK:

1. Robert W. Sebesta, (2012), ―Concepts of Programming Languages‖, Fourth Edition, Addison Wesley (Unit I : Chapter – 1)

2. E. Balaguruswamy, (2010), ―Programming in ANSI C‖, Fifth Edition, Tata McGraw Hill Publications

REFERENCES:

1. Ashok Kamthane, (2009), ―Programming with ANSI & Turbo C‖, Pearson Education

2. Byron Gottfried, (2010), ―Programming with C‖, Schaums Outline Series, Tata McGraw Hill Publications

OPEN EDUCATIONAL RESOURCES:

1. http://www.tutorialspoint.com/cprogramming/
2. http://www.cprogramming.com/
3. http://www.programmingsimplified.com/c-program-examples
4. http://www.programiz.com/c-programming
5. http://www.cs.cf.ac.uk/Dave/C/CE.html
6. http://fresh2refresh.com/c-programming/c-function/

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 STUDYING CONCEPTS OF PROGRAMMING LANGUAGES				
1.1	Language Evaluation Criteria - Language design - Language Categories	4	Discussion	Black Board
1.2	Implementation Methods – Programming Environments - Overview of C: History of C- Importance of C	3	Chalk & Talk	Black Board
1.3	Basic Structure of C Programs-Executing a C Program- Constants, Variables and Data types	4	Lecture	LCD
1.4	Operators and Expressions - Managing Input and Output Operations	4	Discussion	Google classroom
UNIT -2 DECISION MAKING AND BRANCHING				
2.1	Decision Making and Looping	5	Lecture	PPT & White board
2.2	Arrays	5	Chalk & Talk	Green Board
2.3	Character Arrays and Strings	5	Chalk & Talk	Black Board
UNIT – 3 USER DEFINED FUNCTIONS				
3.1	Elements of User Defined Functions	4	Discussion	PPT & White board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.2	Definition of Functions-Return Values and their Types-Function Call	4	Chalk &Talk	Green Board
3.3	Function Declaration	4	Chalk & Talk	Black Board
3.4	Categories of Functions-Nesting of Functions-Recursion	3	Chalk & Talk	Black Board
UNIT – 4STRUCTURES AND UNIONS				
4.1	Introduction	3	Discussion	PPT &White board
4.2	Defining a Structure- Declaring Structure Variables Accessing Structure Members	3	Chalk & Talk	Green Board
4.3	Structure Initialization- Arrays of Structures	3	Chalk & Talk	Black Board
4.4	Arrays within Structures	3	Chalk &Talk	Black Board
4.5	Unions- Size of Structures.	3	Discussion	Black Board
UNIT – 5 POINTERSAND FILES				
5.1	Understanding Pointers-Accessing the Address of a Variable	3	Lecture	PPT & White board
5.2	Declaring Pointer Variables-Initializing of Pointer Variables-Accessing a Variable through its Pointer	3	Chalk & Talk	Black Board
5.3	Chain of Pointers- Pointer Expressions- Pointer and Scale Factor- Pointer and Arrays	3	Lecture	Black Board
5.4	Pointers and Character Strings-Array of Pointers- Pointer as Function Arguments	3	Chalk & Talk	Black Board
5.5	Functions Returning Pointers-Pointers to Functions- **File Management in C**	3	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Advanced Concepts	2	Discussio	Black

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
			n	Board

INTERNAL -UG

Levels	C1	C2	C3	C4	Total Scholastic Marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	Session -wise Average 5 Mks.	Better of W1, W2 5 Mks	M1+M2 5+5=10 Mks.	MID-SEM TEST 15 Mks	35 Mks.	5 Mks.	40Mks.	
K1	5	-	-	2 ½	7.5	-	7.5	18.75 %
K2	-	5	4	2 ½	11.5	-	11.5	28.75 %
K3	-	-	3	5	8	-	8	20 %
K4	-	-	3	5	8	-	8	20 %
Non Scholastic	-	-	-	-		5	5	12.5 %
Total	5	5	10	15	35	5	40	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC				NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	CIA	ESE	Total

5	10	15	5	5	40	60	100

C1 – Average of Two Session Wise Tests

C2 – Average of Two Monthly Tests

C3 - Mid Sem Test

C4 – Best of Two Weekly Tests

C5 – Non – Scholastic

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES
CO1	Outline the fundamental concepts of C programming languages, andits features
CO2	Demonstrate the programming methodology.
CO3	Identify suitable programming constructs for problem solving.
CO4	Select the appropriate data representation, control structures, functions and concepts based on the problem requirement.
CO5	Evaluate the program performance by fixing the errors.

Mapping of COs with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	3	2	2
CO2	3	3	2	3	2	2
CO3	3	3	3	3	2	2
CO4	3	3	2	3	2	2
CO5	3	3	2	3	2	2
Weightage ofcoursecontributedtoeachPSO	15	14	11	15	10	10

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**

♦WeaklyCorrelated -**1**

Forwarded By

HOD'S Signature

& Name

I B.Sc. Information Technology

SEMESTER –I

For those who joined in 2023 onwards

PROGRAM ME CODE	COURSE CODE	COURSE TITLE	CATEGO RY	HRS/WEE K	CREDIT S
USIT	23I1CC 2	C PROGRAMMING PRACTICAL	PRACTIC AL	5	5

COURSE DESCRIPTION

This course content plays a vital role in building the fundamental knowledge in programming.

COURSE OBJECTIVES

- The Course aims to provide exposure to problem-solving through C programming

- It aims to train the student to the basic concepts of the C -Programming language

- Apply different concepts of C language to solve the problem

PROGRAM LIST

1. Programs using Input/ Output functions
2. Programs on conditional structures
3. Command Line Arguments
4. Programs using Arrays
5. String Manipulations
6. Programs using Functions

7. Recursive Functions
8. Programs using Pointers
9. Files
10. Programs using Structures & Unions

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1	Programs using Input/ Output functions	6	Demonstration	Desktop PC
2	Programs on conditional structures	6	Demonstration	Desktop PC
3	Command Line Arguments	6	Demonstration	Desktop PC
4	Programs using Arrays	6	Demonstration	Desktop PC
5	String Manipulations	6	Demonstration	Desktop PC
6	Programs using Functions	6	Demonstration	Desktop PC
7	Recursive Functions	6	Demonstration	Desktop PC
8	Programs using Pointers	6	Demonstration	Desktop PC
9	Files	6	Demonstration	Desktop PC
10	Programs using Structures & Unions	6	Demonstration	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

	COURSE OUTCOMES

NO.	
CO1	Demonstrate the understanding of syntax and semantics of C programs.
CO2	Identify the problem and solve using C programming techniques.
CO3	Identify suitable programming constructs for problem solving.
CO4	Analyze various concepts of C language to solve the problem in an efficient way.
CO5	Develop a C program for a given problem and test for its correctness.

CIA	
Scholastic	23
Non Scholastic	2
	25

Mapping of COs with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	3	2	2
CO2	3	3	2	3	2	2
CO3	3	3	3	3	2	2
CO4	3	3	2	3	2	2
CO5	3	3	2	3	3	2
Weightage ofcoursecontributedtoeachPSO	15	14	11	15	11	10

Forwarded By

**HOD'S Signature
& Name**

I B.Sc. Information Technology
SEMESTER –I
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23G1GEI1	DISCRETE MATHEMATICS	Lecture	5	5

COURSE DESCRIPTION

This course content is enables students to strengthen and increase the understanding of Discrete Mathematics with special emphasis on Computer science applications.

COURSE OBJECTIVES

To impart the mathematical skill to develop logical thinking.

UNITS

UNIT –I SETS, RELATIONS   (14HRS.)

Sets – Definition- Venn Diagram- Operations on sets Properties of Relations- Inverserelation- Equivalence classes- Partition of a set- Fundamental theorem on equivalencerelations- Graphs of relations and Hasse Diagram.

UNIT –II LOGIC   (14 HRS.)

Connectives- Equivalence Formulas- Tautological Implication- Normal

Forms- InferenceTheory- Predicate Calculus-Inference theory for Predicate Calculus.

UNIT –III THEORY OF MATRICES   (14 HRS.)

Matrix Inversion- System of equations- Consistency of systems of linear equations- EigenValues- Eigen Vectors- Digitalization Process- Induction Principle- Peano's Postulates.

UNIT –IV RECURRENCE RELATIONS AND GENERATING FUNCTIONS (14 HRS.)

Polynomial expression- Sequences- Recurrence relations- Generating Functions- Propertiesof Generating Functions- Solution of Recurrence Relations using Generating Functions.

UNIT –V BOOLEAN ALGEBRA   (14 HRS.)

Boolean Algebra- Simplification of Boolean Functions by the map method -Introduction tothe Applications of Boolean Algebra to Switching Theory-Turing Machine Problem.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Recent advancement in discrete mathematics.

TEXT BOOK:

1. V Sundaresan, K S Ganapathy Subramanian, K Ganesan, Discrete mathematics, A.R. Publications, 2002.Chapters: 1(excluding Functions), 2, 3, 6(excluding 6.1, 6.2).

REFERENCES:

1. Doerr, Alan, and Kenneth Levasseur.Applied discrete structures for computer science.Galgotia Publications, New Delhi.

2. J P Tremblay and R Manohar, Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw-Hill Publishing Company Limited.

OPEN EDUCATIONAL RESOURCES:

1. Discrete Mathematics Tutorial

https://www.tutorialspoint.com/discrete_mathematics/index.htm

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 SETS, RELATIONS				
1.1	Sets – Definition- Venn Diagram	4	Discussion	Black Board
1.2	Operations on sets Properties of Relations- Inverserelation- Equivalence classes- Partition of a set	4	Chalk & Talk	Black Board
1.3	Fundamental theorem on equivalence relations	4	Lecture	LCD
1.4	Graphs of relations and Hasse Diagram.	2	Discussion	Google classroom
UNIT -2 LOGIC				
2.1	Connectives- Equivalence Formulas	4	Lecture	PPT & White board
2.2	Tautological Implication- Normal Forms- Inference Theory	4	Chalk & Talk	Green Board
2.3	Predicate Calculus	4	Chalk & Talk	Black Board
2.4	Inference theory for Predicate Calculus.	2	Chalk & Talk	Black Board
UNIT – 3 MATRICES				
3.1	Matrix Inversion- System of equations	4	Discussion	PPT & White board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.2	Consistency of systems of linear equations- Eigen Values	4	Chalk & Talk	Green Board
3.3	Eigen Vectors- Digitalization Process	4	Chalk & Talk	Black Board
3.4	Induction Principle- Peano's Postulates	2	Chalk & Talk	Black Board
UNIT – 4 RECURRENCE RELATIONS AND GENERATING FUNCTIONS				
4.1	Polynomial expression- Sequences	4	Discussion	PPT & White board
4.2	Recurrence relations- Generating Functions	4	Chalk & Talk	Green Board
4.3	Properties of Generating Functions	4	Chalk & Talk	Black Board
4.4	Solution of Recurrence Relations using Generating Functions.	2	Chalk & Talk	Black Board
UNIT – 5 BOOLEAN ALGEBRA				
5.1	Boolean Algebra- Simplification of Boolean Functions by the map method	4	Lecture	PPT & White board
5.2	Introduction to the Applications of Boolean Algebra to Switching Theory	4	Chalk & Talk	Black Board
5.3	Turing Machine Problem	4	Lecture	Black Board
5.4	Turing Machine Problem	2	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Recent advancement in discrete mathematics	2	Discussion	Black Board
6.2	Recent advancement in discrete mathematics	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1	T2	Quiz	Assignment	OBT/PPT				

	10 Mks.	10 Mks.	5 Mks.	5 Mks	5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC	NON -	MARKS

					SCHOLASTIC			
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**CIA**	**ESE**	**Total**
10	**10**	**5**	**5**	**5**	**5**	**40**	**60**	**100**

UG CIA Components

				Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account***

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the basic principles of sets and operations in sets.	K1	PSO1& PSO2
CO 2	Write arguments using logical notation.	K1, K2	PSO2& PSO3
CO 3	Implement various concepts in theory of Matrices	K1, K3	PSO6
CO 4	Demonstrate an understanding of relations and functions and be able to determine their properties.	K1, K2& K3	PSO2 & PSO3

CO 5	Write the diversified solutions for various recurrence relations and Boolean algebra.	K2, K4	PSO6

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
        ♦ Weakly Correlated -**1**

COURSE DESIGNER:

   1. **Staff Name: MRS. R. RAJESWARI**
Forwarded By

V. Mageshwari

HOD'S Signature
& Name

I B.Sc. Information Technology
SEMESTER –I
For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I1FC	FUNDAMENTALS OF COMPUTERS	Lecture	2	2

COURSE DESCRIPTION

This course focuses on computer literacy that prepares students for life-long learning of computer concepts and skills.

COURSE OBJECTIVES

- To analyze a problem with appropriate problem solving techniques

- To understand the main principles of imperative, functional and logic oriented programming languages and

- to increase the ability to learn new programming languages.

UNITS

UNIT –I INTRODUCTION   (6HRS.)

Characteristics of Computers - Evolution of Computers **Basic Computer Organization:** I/O Unit - Storage Unit - Arithmetic Logic Unit - Control Unit - Central Processing Unit

UNIT –II COMPUTER SOFTWARE   (6 HRS.)

Types of Software - System Architecture **Computer Languages:** Machine Language - Assembly Language - High Level Language - Object Oriented Languages

UNIT –III PROBLEM SOLVING CONCEPTS   (6 HRS.)

Problem Solving in Everyday life - Types of Problems - Problem solving with computers - Difficulties with Problem Solving

UNIT –IV PROBLEM SOLVING CONCEPTS FOR THE COMPUTER (6 HRS.)

Constant Variables - Data Types - Functions -Operators - Expressions and Equations - **Organizing the Solution:** Analyzing the problem - Algorithm - Flowchart - Pseudo code

UNIT –V PROGRAMMING STRUCTURE   (6 HRS.)

Structuring a solution - Modules and their function - Local and Global variables - Parameters - Return values - Sequential Logic Structure - Problem solving with Decision - Problem Solving with Loops

TEXT BOOK:

1. PradeepK.Sinha and PritiSinha, (2004) ―Computer Fundamentals‖, Sixth Edition, BPB Publications. (Unit I : Chapter 1 & 2, Unit II : Chapter 10 & 12)

2. Maureen Sprankle and Jim Hubbard, (2009) ―Problem Solving and Programming Concept, Ninth Edition, Prentice Hall. (Unit III: Chapter 1,2 &3) Unit IV : Chapter 3, Unit V : Chapter 4,5 ,6,7 & 8)

REFERENCES:

1. R.G. Dromey, (2007), ―How to Solve it by Computer‖, Prentice Hall International Series in Computer Science.

2. C. S. V. Murthy, (2009), ―Fundamentals of Computers‖, Third Edition, Himalaya Publishing House.

OPEN EDUCATIONAL RESOURCES:

1. http://www.tutorialspoint.com/computer_fundamentals/

2. http://www.comptechdoc.org/basic/basictut/

3. http://www.homeandlearn.co.uk/

4. http://www.top-windows-tutorials.com/computer-basics/

5. https://www.programiz.com/article/flowchart-programming

(Algorithm and flow chart)

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 INTRODUCTION				
1.1	Characteristics of Computers - Evolution of Computers **Basic**	2	Discussion	Black Board
1.2	**Computer Organization:** I/O Unit - Storage Unit - Arithmetic Logic Unit	2	Chalk & Talk	Black Board
1.3	Control Unit - Central Processing Unit	2	Lecture	LCD
UNIT -2 COMPUTER SOFTWARE				
2.1	Types of Software - System Architecture	2	Lecture	PPT & White board
2.2	**Computer Languages:** Machine Language - Assembly Language	2	Chalk & Talk	Green Board
2.3	High Level Language - Object Oriented Languages	2	Chalk &Talk	Black Board
UNIT – 3 PROBLEM SOLVING CONCEPTS				
3.1	Problem Solving in Everyday life -	2	Discussion	PPT & White board
3.2	Types of Problems - Problem solving with computers -	2	Chalk &Talk	Green Board
3.3	Difficulties with Problem Solving	2	Chalk & Talk	Black Board
UNIT – 4 STRUCTURES AND UNIONS				
4.1	Introduction	2	Discussion	PPT &White board
4.2	Defining a Structure- Declaring	2	Chalk & Talk	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	Structure Variables Accessing Structure Members			
4.3	Structure Initialization- Arrays of Structures	2	Chalk & Talk	Black Board
UNIT – 5 POINTERSAND FILES				
5.1	Understanding Pointers- Accessing the Address of a Variable	2	Lecture	PPT & White board
5.2	Declaring Pointer Variables- Initializing of Pointer Variables- Accessing a Variable through its Pointer	2	Chalk & Talk	Black Board
5.3	Chain of Pointers- Pointer Expressions- Pointer and Scale Factor- Pointer and Arrays	2	Lecture	Black Board

INTERNAL -UG

Levels	C1	C2	C3	C4	Total Scholastic Marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	Session-wise Average	Better of W1, W2	M1+M2	MID-SEM TEST				
	5 Mks.	5 Mks	5+5=10 Mks.	15 Mks	35 Mks.	5 Mks.	40Mks.	
K1	5	-	-	2 ½	7.5	-	7.5	18.75 %
K2	-	5	4	2 ½	11.5	-	11.5	28.75 %
K3	-	-	3	5	8	-	8	20 %
K4	-	-	3	5	8	-	8	20 %
Non Scholastic	-	-	-	-		5	5	12.5 %

Total	5	5	10	15	35	5	40	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC				NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	CIA	ESE	Total
5	10	15	5	5	40	60	100

C1 – Average of Two Session Wise Tests

C2 – Average of Two Monthly Tests

C3 - Mid Sem Test

C4 – Best of Two Weekly Tests

C5 – Non – Scholastic

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES
CO1	Outline the Computer fundamentals and various problem solving concepts in Computers
CO2	Describe the basic computer organization, software, computer languages, software development life cycle and the need of structured programming in solving a

	computer problem
CO3	Identify the types of computer languages, software, computer problems and examine how to set up expressions and equations to solve the problem.
CO4	Choose most appropriate programming languages, constructs and features to solve the problems in diversified domains.
CO5	Analyze the design of modules and functions in structuring the solution and various Organizing tools in problem solving.

Mapping of COs with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	3
CO2	3	2	2	2	3	2
CO3	3	3	3	3	2	2
CO4	3	2	2	2	2	3
CO5	3	3	2	2	3	2
Weightage ofcoursecontributed toeachPSO	15	12	11	11	12	12

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**
♦WeaklyCorrelated -**1**

I B.Sc. Information Technology
SEMESTER –I
For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I1SE1	OFFICE AUTOMATION	Practical	2	2

COURSE DESCRIPTION

This course trains students how to use MS Office applications use in office work such as creating professional-quality documents, store, organize and analyze information, arithmetic operations, functions and create dynamic slide presentations with animation, narration, images, and much more, digitally and effectively.

COURSE OBJECTIVES

To impart knowledge on various concepts in MS Word, Excel, PowerPoint & Publisher.

UNITS

UNIT –I WORD (6 HRS.)

Windows Basics – Introduction to word – Editing a document - Move and Copy text - Formatting text & Paragraph – Enhancing document – Columns, Tables and Other features.

UNIT –II EXCEL (6 HRS.)

Introduction to worksheet – getting started with Excel – Editing cell & using Commands and functions – Moving & Copying , Inserting & Deleting Rows & Columns - Printing work sheet.

UNIT –III ADVANCED FEATURES IN EXCEL (6 HRS.)

Creating charts – Naming ranges and using statistical, math and financial functions, in a worksheet – Additional formatting commands and toolbar – other commands & functions.

UNIT –IV POWERPOINT   **(6 HRS.)**

Overview of Power point – presenting shows for corporate and commercial using Power point

UNIT –V ADVANCED FEATURES OF POWER POINT   **(6 HRS.)**

Formatting text and objects to customize the look of publication- Add, Resize, Rotate, and Group objects- Creation of Product Catalogue- Create bookmarks and hyperlinks.

PROGRAM LIST

MS-WORD

1. **Text Manipulation:**Writinga paragraph about the institution and Change the font size and type, Spell check, Aligning and justification of Text
2. **Bio data:** Preparing Bio-data.
3. **Find and Replace:**Writinga paragraph about individual and do the following. Find and Replace, Use Numbering Bullets, Footer and Headers.
4. **Tables and manipulation:** Creation, Insertion, Deletion (Columns and Rows). Create a mark sheet.
5. **Mail Merge:** Prepare an invitation to invite friends for birthday party. Prepare at leastfive letters.

MS-EXCEL

1. Data sorting-Ascending and Descending (both numbers and alphabets)
2. Mark list preparation for a student
3. Individual Pay Bill preparation.
4. Invoice Report preparation.
5. Drawing Graphs. Take your own table.

MS-POWERPOINT

1. Create a slide show presentation for a seminar.
2. Preparation of Organization Charts
3. Create a slide show presentation to display percentage of marks in each semester for all students
4. Use bar chart(X-axis: Semester, Y-axis: % marks).
5. Use different presentation template different transition effect for each

slide.

REFERENCES:
1. Holden, Greg. Microsoft Office 2007 in Simple Steps. Prentice Hall Press, 2009.

Digital Open Educational Resources (DOER):
1. Free Microsoft Office Tutorials At Gcfglobal
   https://edu.gcfglobal.org/en/subjects/office/

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 WORD				
1.1	Text Manipulation	2	Demonstration	Desktop PC
1.2	Preparing Bio-data.	1	Demonstration	Desktop PC
1.3	Find and Replace	2	Demonstration	Desktop PC
1.4	Tables and manipulation	1	Demonstration	Desktop PC
UNIT -2 EXCEL				
2.1	Data sorting-Ascending and Descending (both numbers and alphabets)	2	Demonstration	Desktop PC
2.2	Mark list preparation for a student	2	Demonstration	Desktop PC
2.3	Individual Pay Bill preparation.	2	Demonstration	Desktop PC
UNIT -3 ADVANCED FEATURES IN EXCEL				
3.1	Invoice Report preparation.	2	Demonstration	Desktop PC
3.2	Drawing Graphs.	2	Demonstration	Desktop PC
3.3	Creating Table	2	Demonstration	Desktop PC
UNIT -4 POWER POINT				
4.1	Create a slide show presentation for a seminar.	2	Demonstration	Desktop PC
4.2	Preparation of Organization Charts	2	Demonstration	Desktop PC
4.3	Create a slide show presentation to display percentage of marks in each semester for all students	2	Demonstration	Desktop PC

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -5 ADVANCED FEATURES OF POWER POINT				
5.1	Use bar chart(X-axis: Semester, Y-axis: % marks).	2	Demonstration	Desktop PC
5.2	Use different presentation template different transition effect for each slide.	2	Demonstration	Desktop PC
5.3	Create a slide show presentation and converting into video	2	Demonstration	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES
CO 1	Use Word to prepare organizational documents.
CO 2	Design financial & other business applications requiring mathematical calculations using spread sheet software.
CO 3	Develop various charts--pie, bar, line, column, & area using spread sheet software.
CO 4	Create Dynamic presentations with animation.
CO 5	Demonstrate presentations with narration and images.

Mapping of COs with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	3
CO2	3	2	2	2	3	2
CO3	3	3	3	3	2	2
CO4	3	2	2	2	2	3
CO5	3	3	2	2	3	2
Weightage ofcoursecontributed toeachPSO	15	12	11	11	12	12

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**
♦WeaklyCorrelated -**1**

Forwarded By

HOD'S Signature
& Name

I B.Sc. Information Technology
SEMESTER –II
For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I2CC3	JAVA PROGRAMMING	Lecture	5	4

COURSE DESCRIPTION

This course enable the students to build object oriented java programs using the concept of abstraction, encapsulation, exception handling, packages, interfaces, threads and AWT controls. It also imparts the ability to develop projects in java with JDBC connectivity.

COURSE OBJECTIVES

- To provide knowledge on fundamentals of object-oriented programming
- To have the ability to use the SDK environment to create, debug and run servlet programs

UNIT –I INTRODUCTION (15 HRS.)

FundamentalsofObject-OrientedProgramming:Introduction–ObjectOrientedParadigm–ConceptsofObject–OrientedProgramming–BenefitsofOOP–Evolution: JavaHistory-JavaFeatures-DiffersfromCandC++-OverviewofJavaLanguage:JavaProgram-Structure–Tokens–JavaStatements–JavaVirtualMachine–CommandLineArguments

UNIT –II BRANCHING, LOOPING& CLASSES (15 HRS.)

Constants,VariablesandDataTypes–OperatorsandExpressions–Decisionmaking andBranching–Looping– Arrays - Strings – Collection Interfaces and classes

UNIT –III CLASSES OBJECTS AND METHODS(15 HRS.)

Introduction – Defining a class – Method Declaration –Constructors - Method

Overloading – Static Members – Nesting of methods – Inheritance –Overriding– Final variables andmethods– Abstract methodsand classes

UNIT –IV INTERFACE& PACKAGES   (13 HRS.)

MultipleInheritance:DefiningInterfaces–ExtendingInterfaces–ImplementingInterfaces – Packages: Creating Packages – Accessing Packages – Using a Package – ManagingErrorsandExceptions- MultithreadedProgramming

UNIT –V JAVA DATABASE CONNECTIVITY& SERVLET   (15 HRS.)

Layout Managers -JDBC – Java Servlet: - Servlet Environment Role – Servlet API –ServletLifeCycle –ServletContext–HTTPSupport–HTMLtoServlet Communication

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (2 HRS.)

Advanced Concepts in JAVA.

TEXT BOOK:

1. E Balagurusamy(2010), "Programming with Java", Tata McGraw Hill Edition India Private Ltd, 4th   Edition

2. C Xavier,"Java Programming – A Practical Approach", Tata McGraw Hill Edition Private Ltd

REFERENCES:

1. P.Naughton and H.Schildt (1999), "Java 2 The Complete Reference", TMH, 3rd Edition

2. JaisonHunder& William Crawford (2002),"Java Servlet Programming", O'Reilly

3. Jim Keogh (2002), "J2EE: The Complete Reference", Tata McGraw Hill Edition.

OPEN EDUCATIONAL RESOURCES:

1. http://javabeginnerstutorial.com/core-java/
2. http://www.tutorialspoint.com/java/
3. http://beginnersbook.com/java-tutorial-for-beginners-with-examples/
4. http://www.homeandlearn.co.uk/java/java.html

5. http://www.journaldev.com/1877/servlet-tutorial-java (Unit V :
Servlet API)

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 INTRODUCTION				
1.1	FundamentalsofObject-OrientedProgramming:Introduction	4	Discussion	Black Board
1.2	–ObjectOrientedParadigm–Concepts sofObject–OrientedProgramming–B enefitsofOOP	3	Chalk & Talk	Black Board
1.3	Evolution:JavaHistory-JavaFeatures-DiffersfromCandC++-OverviewofJ avaLanguage	4	Lecture	LCD
1.4	JavaProgram-Structure–Tokens–Ja vaStatements–JavaVirtualMachine –CommandLineArguments	4	Discussion	Google classroom
UNIT -2BRANCHING, LOOPING& CLASSES				
2.1	Constants,VariablesandDataTypes	5	Lecture	PPT & White board
2.2	OperatorsandExpressions–Decision making andBranching–Looping	5	Chalk & Talk	Green Board
2.3	Arrays - Strings – Collection Interfaces and classes	5	Chalk & Talk	Black Board
UNIT – 3 CLASSES OBJECTS AND METHODS				
3.1	Introduction – Defining a class – Method Declaration	4	Discussion	PPT & White board
3.2	Constructors - Method Overloading – Static Members	4	Chalk &Talk	Green Board
3.3	Nesting of methods – Inheritance –Overriding– Final variables andmethods	4	Chalk & Talk	Black Board
3.4	Abstract methodsand classes	3	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT – 4 INTERFACE & PACKAGES				
4.1	MultipleInheritance:DefiningInterfaces	3	Discussion	PPT &White board
4.2	ExtendingInterfaces–ImplementingInterfaces	3	Chalk & Talk	Green Board
4.3	Packages: Creating Packages – Accessing Packages	3	Chalk & Talk	Black Board
4.4	Using a Package – ManagingErrorsandExceptions	3	Chalk & Talk	Black Board
4.5	MultithreadedProgramming	3	Discussion	Black Board
UNIT – 5 JAVA DATABASE CONNECTIVITY& SERVLET				
5.1	Layout Managers -JDBC – Java Servlet: - Servlet Environment Role	3	Lecture	PPT & White board
5.2	Servlet API –ServletLifeCycle	3	Chalk & Talk	Black Board
5.3	ServletContext–	3	Lecture	Black Board
5.4	HTTPSupport	3	Chalk & Talk	Black Board
5.5	HTMLtoServlet Communication	3	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Advanced Concepts	2	Discussion	Black Board

INTERNAL -UG

Levels	C1	C2	C3	C4	Total Scholastic Marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	Session-wise Average	Better of W1, W2	M1+M2	MID-SEM TEST				

	5 Mks.	5 Mks	5+5=10 Mks.	15 Mks	35 Mks.	5 Mks.	40Mks.	
K1	5	-	-	2 ½	7.5	-	7.5	18.75 %
K2	-	5	4	2 ½	11.5	-	11.5	28.75 %
K3	-	-	3	5	8	-	8	20 %
K4	-	-	3	5	8	-	8	20 %
Non Scholastic	-	-	-	-		5	5	12.5 %
Total	5	5	10	15	35	5	40	100 %

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

EVALUATION PATTERN

SCHOLASTIC				NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	CIA	ESE	Total
5	10	15	5	5	40	60	100

C1 – Average of Two Session Wise Tests

C2 – Average of Two Monthly Tests

C3 - Mid Sem Test

C4 – Best of Two Weekly Tests

C5 – Non – Scholastic

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES
CO1	Outline the basic terminologies of OOP, programming language techniques,JDBCandInternetprogrammingconcepts
CO2	Solve problems using basic constructs, mechanisms, techniquesandtechnologies ofJava
CO3	AnalyseandexplainthebehaviorofsimpleprogramsinvolvingdifferenttechniquessuchasInheritance,Packages,Interfaces,ExceptionHandlingandThreadandtechnologiessuchasJDBCandServlets
CO4	Assessvariousproblem-solvingstrategiesinvolvedinJavatodevelopa high-level application.
CO5	DesignGUIbasedJDBCapplicationsandabletodevelopServletsusingsuitableOOP concepts and techniques

Mapping of C0s with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	2
CO2	2	3	2	2	2	2
CO3	2	3	3	3	2	2
CO4	2	3	2	2	2	2
CO5	3	3	2	2	2	2
Weightage ofcoursecontributed toeachPSO	12	14	11	11	10	10

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**
♦WeaklyCorrelated -**1**

Forwarded By

HOD'S Signature

I B.Sc. Information Technology

SEMESTER –II

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I2CC4	JAVA PROGRAMMING & DATA STRUCTURES PRACTICAL	PRACTICAL	5	4

COURSE DESCRIPTION

This course gives hands on experience, practices the concepts of java programming language, and develops solutions for real world problems.

COURSE OBJECTIVES

- To design and develop applications using different Java programming language techniques, JDBC & Servlets
- To organize and manipulate the data with the help of fundamental data structures

PROGRAM LIST

1. Basic Programs
2. Arrays
3. Strings
4. ArrayList, HashSet and Vector collection classes
5. ClassesandObjects
6. Interfaces
7. Inheritance
8. Packages
9. ExceptionHandling
10. Threads
11. LinkedList
12. Stacks
13. Queue
14. Sorting
15. Binary Tree Representation
16. Working with Database using JDBC
17. Web application using Servlet

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1	Basic Programs	6	Demonstration	Desktop PC
2	Arrays	6	Demonstration	Desktop PC
3	Strings	6	Demonstration	Desktop PC
4	ArrayList, HashSet and Vector collection classes	6	Demonstration	Desktop PC
5	ClassesandObjects	6	Demonstration	Desktop PC
6	Interfaces	6	Demonstration	Desktop PC
7	Inheritance	6	Demonstration	Desktop PC
8	Packages	6	Demonstration	Desktop PC
9	ExceptionHandling	6	Demonstration	Desktop PC
10	Threads	6	Demonstration	Desktop PC
11	LinkedList	6	Demonstration	Desktop PC
12	Stacks	6	Demonstration	Desktop PC
13	Queue	6	Demonstration	Desktop PC
14	Sorting	6	Demonstration	Desktop PC
15	Binary Tree Representation	6	Demonstration	Desktop PC
16	Working with Database using JDBC	6	Demonstration	Desktop PC
17	Web application using Servlet	6	Demonstration	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES
CO1	Identifyandexplain the wayofsolvingthe simple problems
CO2	Use appropriate software development environment to write,

	compile and execute object-oriented Javaprograms
CO3	Analyze and identify necessary mechanisms ofJavaneeded tosolve real-world problem
CO4	Test fordefectsand validateaJavaprogramwith differentinputs
CO5	Design, develop and compile Core Java , GUI , JDBC and servlet applicationsthat utilizeOOP and data structure concepts

Mapping of COs with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	3	3	2	2
CO2	3	3	3	3	2	2
CO3	3	3	3	2	2	3
CO4	3	3	3	3	3	2
CO5	3	3	2	3	2	2
Weightage ofcoursecontributed toeachPSO	15	14	14	14	11	11

Forwarded By

HOD'S Signature

& Name

I B.Sc. Information Technology
SEMESTER –II
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23G2GEI2	OPERATIONS RESEARCH	Lecture	5	5

COURSE DESCRIPTION

This course content helps in solving problems in different environments using Linear Programming methodologies.

COURSE OBJECTIVES

To impart the mathematical skill to develop logical thinking.

UNITS

UNIT –I LINEAR PROGRAMMING PROBLEM - MATHEMATICAL FORMULATION (14HRS.)

Introduction - Linear Programming Problem - Mathematical Formulation of the Problem - Illustration on Mathematical Formulation of LPPs, Linear Programming Problem- Graphical Solution: Introduction - Graphical Solution Method - General Linear Programming problem.

UNIT –II LINEAR PROGRAMMING - SIMPLEX METHOD (14 HRS.)

Introduction - Fundamental Properties of Solutions - The Computational Procedure - Use of Artificial Variables - Degeneracy in Linear Programming - Solution of Simultaneous Linear Equations - Inverting a Matrix Using Simplex Method - Application of Simplex Method.

UNIT –III DUAL PROBLEM (14 HRS.)

Primal-Dual Pair in Matrix Form - Duality Theorems - Complementary Slackness Theorem - Duality and Simplex Method - Economic Interpretation

of Duality - Dual Simplex Method.

UNIT –IV TRANSPORTATION PROBLEM   (14 HRS.)

Introduction - LP Formulation of the Transportation Problem - Existence of Solution in T.P. - Duality in Transportation Problem - The Transportation Table - Loops in Transportation Tables - Triangular Basis in a T.P. - Solution of a Transportation Problem - Finding an Initial Basic Feasible Solution - Test for Optimality

UNIT –V ASSIGNMENT PROBLEM   (14 HRS.)

Introduction - Mathematical Formulation of the Problem - Solution Methods of Assignment Problem - Special Cases in Assignment Problem - Dual of the Assignment Method – The Travelling Salesman Problem.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Recent advancement in OR.

TEXT BOOK:

1. Gupta, S. C., and V. K. Kapoor. "Fundamentals of Mathematical Statistics, Ninth Extensively Revised Edition, Sultan Chand & Sons." (1997).Chapter: 2, 3, 4, 5, 10, 11

REFERENCES:

1. V.Sundaresan, K.S. Ganapathy Subramanian, K. Ganesan."Operations Research", ARS Publications, 2003.

2. Hamdy A Taha," Introduction to Operations Research", Prentice Hall India,Seventh Edition, Third Indian Reprint 2004.

OPEN EDUCATIONAL RESOURCES :

1. Operations Research - Suny Binghamton University

https://www.youtube.com/playlist?list=PLgA4wLGrqI-ll9OSJmR5nU4l V4_aNTgKx

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 LINEAR PROGRAMMING				
1.1	Introduction - Linear Programming Problem - Mathematical Formulation of the Problem	4	Discussion	Black Board
1.2	Illustration on Mathematical Formulation of LPPs, Linear Programming Problem-	4	Chalk & Talk	Black Board
1.3	Graphical Solution: Introduction - Graphical Solution Method	4	Lecture	LCD
1.4	General Linear Programming problem.	2	Discussion	Google classroom
UNIT -2 LINEAR PROGRAMMING				
2.1	Introduction - Fundamental Properties of Solutions - The Computational Procedure	4	Lecture	PPT & White board
2.2	Use of Artificial Variables - Degeneracy in Linear Programming	4	Chalk & Talk	Green Board
2.3	Solution of Simultaneous Linear Equations - Inverting a Matrix	4	Chalk & Talk	Black Board
2.4	Using Simplex Method - Application of Simplex Method.	2	Chalk & Talk	Black Board
UNIT – 3 DUAL PROGRAM				
3.1	Primal-Dual Pair in Matrix Form - Duality Theorems	4	Discussion	PPT & White board
3.2	Complementary Slackness Theorem - Duality and Simplex Method	4	Chalk & Talk	Green Board
3.3	Economic Interpretation of Duality	4	Chalk & Talk	Black Board
3.4	Dual Simplex Method.	2	Chalk & Talk	Black Board
UNIT – 4 TRANSPORTATION PROBLEM				

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.1	Introduction - LP Formulation of the Transportation Problem - Existence of Solution in T.P. - Duality in Transportation Problem	4	Discussion	PPT & White board
4.2	- The Transportation Table - Loops in Transportation Tables - Triangular Basis in a T.P.	4	Chalk & Talk	Green Board
4.3	Solution of a Transportation Problem - Finding an Initial Basic Feasible Solution	4	Chalk & Talk	Black Board
4.4	Test for Optimality	2	Chalk & Talk	Black Board
UNIT – 5 ASSIGNMENT PROBLEM				
5.1	Introduction - Mathematical Formulation of the Problem	4	Lecture	PPT & White board
5.2	Solution Methods of Assignment Problem - Special Cases in Assignment Problem	4	Chalk & Talk	Black Board
5.3	Dual of the Assignment Method	4	Lecture	Black Board
5.4	The Travelling Salesman Problem.	2	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Recent advancement in OR	2	Discussion	Black Board
6.2	Recent advancement in OR	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1	T2	Quiz	Assignment	OBT/PPT				
	10 Mks.	10 Mks.	5 Mks.	5 Mks	5 Mks	35 Mks.	5 Mks.	40Mks.	

K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Identify and develop operational research models from the verbal description of the real system.	K1, K2	PSO1& PSO2
CO 2	Understand simplex, dual problem.	K2 & K3	PSO2
CO 3	Understand the mathematical tools that are needed to solve the optimization problems.	K2 & K3	PSO1& PSO2
CO 4	Write diversified solutions for various Transportation problems.	K2 & K3	PSO3
CO 5	Analyze assignment problems.	K3& K4	PSO7

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
♦ Weakly Correlated -**1**

COURSE DESIGNER:
  1. **Staff Name: Mrs. R.Rajeswari**

Forwarded By

V. Mageshwari

Entrepreneurship 100%

I B.Sc. Information Technology

SEMESTER –I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I2SE2	MULTIMEDIA LAB	Practical	2	2

COURSE DESCRIPTION

This course content is enables other disciplined students to strengthen and increase the understanding of basis Multimedia application software like Photoshop.

COURSE OBJECTIVES

To impart, practical knowledge on various editing techniques in Photoshop.

UNITS

UNIT –I BASICS OF PHOTOSHOP (6HRS.)

Introduction to the Work Area: A look at the various tools in Photoshop - Toolbars - Palettes – Menus – Image Resolution – Mode of the Image.

UNIT –II EDITING IMAGES (6 HRS.)

Color – Color Pickers – Eye Dropper Tool – Magic Eraser Tool – Background Eraser Tool – Rotate Canvas Menu – Adjustments – Image editing menu items – Snap.

UNIT –III SELECTION AND PAINTING TOOLS (6 HRS.)

Marquee Tool-Crop Tool-Lasso Tool-Move Tool, Rubber/clone Stamp tool-Eraser Tool-Paint Brush Tool-Art History/History Brush Tool-Text Tool.

UNIT –IV TRANSFORMATIONS (6 HRS.)

Resizing: Resizing an image- Resizing a canvas- Resizing a selection

Rotating: Rotate 180 degrees and 90 degrees clockwise or counter clockwise-Rotate by degrees- Rotate a selection.

UNIT –V FILTERS (6 HRS.)

Sharpen Filters: Sharpen, Sharpen more, Blur Filters: Blur, Blur-more,Distort Filters: Pinch(Squeezing, bulging), Pixellate Filters: crystallize, Extracting an part of image from background image.

LAB EXERCISE

1. Drawing Basic Shapes
2. Text Effect
3. Effects
4. Image Editing
5. Layout and Page Size Change
6. Tools
7. Resizing Image
8. Rotating Image
9. Filters

REFERENCES:

1. Kumar Bittu, "Adobe Photoshop", ISBN: 978-9350570166, V&S Publishers.

2. Photoshop 7 Complete reference , ISBN 978-0072223118 - Greenberg – McGraw Hill Publications.

OPEN EDUCATIONAL RESOURCES:

1. Photoshop Online Training

   https://www.tutorialspoint.com/photoshop_online_training/index.asp

2. https://www.entheosweb.com/tutorials/coreldraw/liquid_lext/default .asp

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 BASICS OF PHOTOSHOP				
1.1	Introduction to the Work	2	Demonstratio	Desktop

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	Area: A look at the various tools in Photoshop		n	PC
1.2	Toolbars – Palettes	1	Demonstration	Desktop PC
1.3	Menus – Image Resolution	2	Demonstration	Desktop PC
1.4	Mode of the Image	1	Demonstration	Desktop PC
UNIT -2 EDITING IMAGES				
2.1	Color – Color Pickers – Eye Dropper Tool ——	2	Demonstration	Desktop PC
2.2	Magic Eraser Tool – Background Eraser Tool	1	Demonstration	Desktop PC
2.3	Rotate Canvas Menu , Adjustments	2	Demonstration	Desktop PC
2.4	Image editing menu items, Snap	1	Demonstration	Desktop PC
UNIT -3 SELECTION AND PAINTING TOOLS				
3.1	Marquee Tool, Crop Tool, LassoTool, Move Tool	2	Demonstration	Desktop PC
3.2	Rubber/clone Stamp tool, Eraser Tool, Paint Brush Tool	2	Demonstration	Desktop PC
3.3	Art History Tool, History Brush Tool, Text Tool.	2	Demonstration	Desktop PC
UNIT -4 TRANSFORMATIONS				
4.1	Resizing an image, Resizing a Canvas	2	Demonstration	Desktop PC
4.2	Resizing a selection Rotating, Rotate 180 degrees and 90 Degrees	2	Demonstration	Desktop PC
4.3	Clockwise or counter clockwise, Rotate by degrees-Rotate a selection.	2	Demonstration	Desktop PC
UNIT -5 FILTERS				
5.1	Sharpen Filters, Blur Filters Distort Filters	2	Demonstration	Desktop PC
5.2	Pinch(Squeezing, bulging), Pixelate Filters	2	Demonstration	Desktop PC
5.3	Extracting a part of image from background image.	2	Demonstration	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES
CO 1	Utilize the various options in Photoshop working area.
CO 2	Apply basic tools to format the images and its background.
CO 3	Make use of selection andpainting tools for editing images.
CO 4	Develop effective graphics for both web and print media.
CO 5	Apply layer features and layer management techniques for creating Web pages and Invitations.

Mapping of COs with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	3
CO2	3	2	2	2	3	2
CO3	3	3	3	3	2	2
CO4	3	2	2	2	2	3
CO5	3	3	2	2	3	2
Weightage ofcoursecontributed toeachPSO	15	12	11	11	12	12

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**
♦WeaklyCorrelated -**1**

Entrepreneurship 100%

I B.Sc. Information Technology

SEMESTER –I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I2SE3	AUTOMATION SKILLS	Practical	2	2

COURSE DESCRIPTION

This course trains students how to use MS Office applications use in office work such as creating professional-quality documents, store, organize and analyze information, arithmetic operations, functions and create dynamic slide presentations with animation, narration, images, and much more, digitally and effectively.

COURSE OBJECTIVES

To impart knowledge on various concepts in MS Word, Excel, PowerPoint & Publisher.

UNITS

UNIT –I WORD (6 HRS.)

Windows Basics – Introduction to word – Editing a document - Move and Copy text - Formatting text & Paragraph – Enhancing document – Columns, Tables and Other features.

UNIT –II EXCEL (6 HRS.)

Introduction to worksheet – getting started with Excel – Editing cell & using Commands and functions – Moving & Copying , Inserting & Deleting Rows & Columns - Printing work sheet.

UNIT –III ADVANCED FEATURES IN EXCEL (6 HRS.)

Creating charts – Naming ranges and using statistical, math and financial functions, in a worksheet – Additional formatting commands and toolbar – other commands & functions.

UNIT –IV POWERPOINT (6 HRS.)

Overview of Power point – presenting shows for corporate and commercial using Power point

UNIT –V ADVANCED FEATURES OF POWER POINT   (6 HRS.)

Formatting text and objects to customize the look of publication- Add, Resize, Rotate, and Group objects- Creation of Product Catalogue- Create bookmarks and hyperlinks.

PROGRAM LIST

MS-WORD

6. **Text Manipulation:**Writinga paragraph about the institution and Change the font size and type, Spell check, Aligning and justification of Text
7. **Bio data:** Preparing Bio-data.
8. **Find and Replace:**Writinga paragraph about individual and do the following. Find and Replace, Use Numbering Bullets, Footer and Headers.
9. **Tables and manipulation:** Creation, Insertion, Deletion (Columns and Rows). Create a mark sheet.
10. **Mail Merge:** Prepare an invitation to invite friends for birthday party. Prepare at leastfive letters.

MS-EXCEL

1. Data sorting-Ascending and Descending (both numbers and alphabets)
6. Mark list preparation for a student
7. Individual Pay Bill preparation.
8. Invoice Report preparation.
9. Drawing Graphs. Take your own table.

MS-POWERPOINT

6. Create a slide show presentation for a seminar.
7. Preparation of Organization Charts
8. Create a slide show presentation to display percentage of marks in each semester for all students
9. Use bar chart(X-axis: Semester, Y-axis: % marks).
10. Use different presentation template different transition effect for each slide.

REFERENCES:

2. Holden, Greg. Microsoft Office 2007 in Simple Steps. Prentice Hall Press, 2009.

Digital Open Educational Resources (DOER):

2. Free Microsoft Office Tutorials At Gcfglobal
https://edu.gcfglobal.org/en/subjects/office/

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 WORD				
1.1	Text Manipulation	2	Demonstration	Desktop PC
1.2	Preparing Bio-data.	1	Demonstration	Desktop PC
1.3	Find and Replace	2	Demonstration	Desktop PC
1.4	Tables and manipulation	1	Demonstration	Desktop PC
UNIT -2 EXCEL				
2.1	Data sorting-Ascending and Descending (both numbers and alphabets)	2	Demonstration	Desktop PC
2.2	Mark list preparation for a student	2	Demonstration	Desktop PC
2.3	Individual Pay Bill preparation.	2	Demonstration	Desktop PC
UNIT -3 ADVANCED FEATURES IN EXCEL				
3.1	Invoice Report preparation.	2	Demonstration	Desktop PC
3.2	Drawing Graphs.	2	Demonstration	Desktop PC
3.3	Creating Table	2	Demonstration	Desktop PC
UNIT -4 POWER POINT				
4.1	Create a slide show presentation for a seminar.	2	Demonstration	Desktop PC
4.2	Preparation of Organization Charts	2	Demonstration	Desktop PC
4.3	Create a slide show presentation to display percentage of marks in each semester for all students	2	Demonstration	Desktop PC
UNIT -5 ADVANCED FEATURES OF POWER POINT				
5.1	Use bar chart(X-axis: Semester, Y-axis: % marks).	2	Demonstration	Desktop PC
5.2	Use different presentation template different transition	2	Demonstration	Desktop PC

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	effect for each slide.			
5.3	Create a slide show presentation and converting into video	2	Demonstration	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES
CO 1	Use Word to prepare organizational documents.
CO 2	Design financial & other business applications requiring mathematical calculations using spread sheet software.
CO 3	Develop various charts--pie, bar, line, column, & area using spread sheet software.
CO 4	Create Dynamic presentations with animation.
CO 5	Demonstrate presentations with narration and images.

Mapping of COs with PSOs

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	3
CO2	3	2	2	2	3	2
CO3	3	3	3	3	2	2
CO4	3	2	2	2	2	3
CO5	3	3	2	2	3	2
Weightage ofcoursecontributed toeachPSO	15	12	11	11	12	12

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**
♦WeaklyCorrelated -**1**

Forwarded By

HOD'S Signature
& Name

II B.Sc. Information Technology

SEMESTER –III

For those who joined in 2021 onwards

PROGRAM ME CODE	COURS E CODE	COURSE TITLE	CATEGOR Y	HRS/WEE K	CREDIT S
USIT	19I3CC 5	DATABASEMAN AGEMENT SYSTEMS	Lecture	6	4

COURSE DESCRIPTION

This course introduces database design and creation using DBMS software. It also imparts various concepts in database management system.

COURSE OBJECTIVES

To facilitate the student to understand the various functionalities of DBMS software and perform many operations related to creating, manipulating and maintaining databases for Real-world applications.

UNITS

UNIT –I DATABASES   (17 HRS.)

Purpose of database systems - View of data- Database languages – Relational Databases – Database Design - Data Storage and Querying – Transaction Management- Database Architecture - Data mining and Information Retrieval – Specialty Databases - Analysis — Database users and Administrators. Relational Model - Structure of relational databases – Database Schema – Keys – Schema Diagram – **Relational Operations (Self Study).**

UNIT –II SQL   (17 HRS.)

Background – Data Definition - Basic structure of SQL Queries - Set operations - Aggregate functions - Null values -nested sub queries – Complex Queries - Views - Modifications of the database – Joins – Views - relations - Embedded SQL – Dynamic SQL – SQL Functions and **procedures(Self Study).**

UNIT –III DATABASE DESIGN   (17

HRS.)

Normalization - Atomic Domains and First Normal Form –Decomposition - Functional Dependencies - Multivalued Dependencies - Normal forms

UNIT –IV RELATIONAL QUERY LANGUAGES AND E-R MODEL (17 HRS.)

Algebra - The Tuple Relational Calculus - The Domain Relational Calculus - E-R Model - Constraints - E- R Diagram - **Extended E - R Features (Self Study) .**

UNIT –V PL/SQL   (17 HRS.)

Introduction - The generic PL/SQL Block - The PL/SQL execution environment – PL/SQL - Control Structure. Introduction to cursors - Cursor FOR loops. Advantages of using Procedure or Function - Procedures versus Functions - Database triggers - **Deleting a trigger (Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Multidimensional databases - Mobile databases - Multimedia databases

TEXT BOOK:

1. Silberschatz, Abraham, Henry F. Korth, and S. Sudarshan." Database System Concepts.", 6th edition, McGraw Hill Education Private Limited (2016).chapters 1, 2, 3, 4, 5, 6, 7, 8

2. Bayross, Ivan. SQL, PL/SQL: The programming language of Oracle.BPB publications, 2010.chapters 15, 16, 18

REFERENCES:

1. Leon, Alexis, and Mathews Leon.Database management systems. Vikas Publishing House Pvt. Limited, 2010.

2. Elmasri, R., &Navathe, S. B. (2011).Database systems.Boston, MA: Pearson Education.

OPEN EDUCATIONAL RESOURCES:

1. Dbms Tutorial: Database Management System - Javatpoint

   https://www.javatpoint.com/dbms-tutorialIntroduction To Data Structure

2. Database Management System Tutorial - Tutorialspoint

https://www.tutorialspoint.com/dbms/index.htm

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 DATABASES				
1.1	Purpose of database systems	1	Discussion	Black Board
1.2	View of data, Database languages	2	Chalk & Talk	Black Board
1.3	Relational Databases, Database Design	1	Lecture	LCD
1.4	Data Storage and Querying	1	Discussion	Google classroom
1.5	Transaction Management, Database Architecture	1	Chalk & Talk	Black Board
1.6	Data mining and Information Retrieval	2	Chalk & Talk	Black Board
1.7	Specialty Databases, Database users and Administrators	2	Lecture	PPT & White board
1.8	Relational Model, Structure of relational databases	2	Chalk & Talk	Black Board
1.9	Database Schema	2	Chalk & Talk	Black Board
1.10	Keys, Schema Diagram	2	Chalk & Talk	Black Board
1.11	Relational Operations (Self Study)	1	Discussion	Google classroom
UNIT -2 SQL				
2.1	Data Definition	1	Lecture	PPT & White board
2.2	Basic structure of SQL Queries	2	Chalk & Talk	Green Board
2.3	Set operations, Aggregate functions	2	Chalk & Talk	Black Board
2.4	Null values Nested sub queries	2	Chalk &	Black

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
			Talk	Board
2.5	Complex Queries	2	Chalk & Talk	Black Board
2.6	Views, Modifications of the database	2	Chalk & Talk	Black Board
2.7	Joins, Relations	2	Lecture	Google classroom
2.8	Embedded SQL	2	Chalk & Talk	Black Board
2.9	Dynamic SQL, SQL Functions	1	Chalk & Talk	Black Board
2.10	SQL Procedures (Self Study)	1	Discussion	Google classroom
UNIT – 3 DATABASE DESIGN				
3.1	Normalization	1	Discussion	PPT & White board
3.2	Atomic Domains	2	Chalk & Talk	Green Board
3.3	First Normal Form (1NF)	1	Chalk & Talk	Black Board
3.4	Decomposition	2	Chalk & Talk	Black Board
3.5	Functional Dependencies	2	Discussion	Black Board
3.6	Multivalued Dependencies	1	Lecture	PPT & White board
3.7	Second Normal Form (2NF)	1	Lecture	Black Board
3.8	Third Normal Form (3NF)	1	Chalk & Talk	Black Board
3.9	Boyce-Codd Normal Form (BCNF)	2	Chalk & Talk	Black Board
3.10	Fourth Normal Form (4NF)	2	Chalk & Talk	Black Board
3.11	Fifth Normal Form (5NF)	2	Chalk & Talk	Black Board
UNIT – 4 RELATIONAL QUERY LANGUAGES AND E-R MODEL				
4.1	Algebra	2	Discussion	PPT & White board
4.2	The Tuple Relational Calculus	3	Chalk & Talk	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.3	The Domain Relational Calculus	3	Chalk & Talk	Black Board
4.4	E-R Model	3	Chalk & Talk	Black Board
4.5	Constraints	3	Discussion	Black Board
4.6	E- R Diagram	2	Lecture	Green Board
4.7	Extended E - R Features (Self Study)	1	Discussion	Black Board
UNIT – 5 PL/SQL				
5.1	Introduction, The generic PL/SQL Block	2	Lecture	PPT & White board
5.2	The PL/SQL execution environment	1	Chalk & Talk	Black Board
5.3	PL/SQL	2	Lecture	Black Board
5.4	Control Structure	2	Chalk & Talk	Black Board
5.5	Introduction to cursors	2	Chalk & Talk	Black Board
5.6	Cursor FOR loops	2	Chalk & Talk	Black Board
5.7	Advantages of using Procedure or Function	1	Chalk & Talk	Black Board
5.8	Procedures versus Functions	1	Chalk & Talk	Black Board
5.9	Database triggers	2	Chalk & Talk	Black Board
5.10	Deleting a trigger (Self Study)	2	Discussion	Google classroom
UNIT –6 DYNAMISM				
6.1	Multidimensional databases	2	Discussion	Black Board
6.2	Mobile databases, Multimedia databases	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment

	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain the structure and model of the relational database system.	K1	PSO1& PSO2
CO 2	Design multiple tables and use group functions, sub queries.	K1, K2,	PSO2
CO 3	Design a database based on a data model considering the normalization to a specified level.	K1 & K3	PSO4

CO 4	Develop E- R model based tables.	K1, K2, K3 &	PSO3
CO 5	Evaluate different PL/SQL blocks.	K2 & K4	PSO6

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
          ♦ Weakly Correlated -**1**

COURSE DESIGNER:

   11.   Staff Name: MRS. V. JANE VARAMANI SULEKHA

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

II B.Sc. Information Technology
SEMESTER –III
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I3CC6	LAB III: RDBMS	Practical	6	3

COURSE DESCRIPTION

This course gives hands on experience in relational database management system.

COURSE OBJECTIVES

To facilitate the students with hands on training on SQL to design Databases. It also gives an exposure to database design and E-R Modeling.

PROGRAM LIST

1. DDL Commands

12. DML Commands

13. DCL Commands

14. TCL Commands

15. Programs on Mathematical functions.

16. Programs on string functions.

17. Programs on Aggregate functions.

18. Programs on Date functions.

19. Program using Data Constraints like Primary Key, Foreign key, check constraints.

20. Programs on Sub queries

21. Programs on Nested queries

22. Programs on Group by and Order by

23. Implementing the concepts of Joins

24. Programs using decision making and looping statements.

25. PL/SQL program using Cursors

26. PL/SQL program using Cursors and Loops

27. PL/SQL program using triggers.

28. Programs using Forms

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1	DDL Commands	6	Demonstration	Desktop PC
2	DML Commands	6	Demonstration	Desktop PC
3	DCL Commands	6	Demonstration	Desktop PC
4	TCL Commands	6	Demonstration	Desktop PC
5	Programs on Mathematical functions.	6	Demonstration	Desktop PC
6	Programs on string functions.	6	Demonstration	Desktop PC
7	Programs on Aggregate functions.	6	Demonstration	Desktop PC
8	Programs on Date functions.	6	Demonstration	Desktop PC
9	Program using Data Constraints like Primary Key, Foreign key, check constraints.	6	Demonstration	Desktop PC
10	Programs on Sub queries	6	Demonstration	Desktop PC
11	Programs on Nested queries	3	Demonstration	Desktop PC
12	Programs on Group by and Order by	3	Demonstration	Desktop PC
13	Implementing the concepts of Joins	4	Demonstration	Desktop PC
14	Programs using decision making and looping statements.	5	Demonstration	Desktop PC
15	PL/SQL program using Cursors	5	Demonstration	Desktop PC
16	PL/SQL program using Cursors and Loops	5	Demonstration	Desktop PC
17	PL/SQL program using	5	Demonstratio	Desktop

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	triggers.		n	PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain Various SQL Commands.	K2, K3	PSO1& PSO2
CO 2	Write SQL queries to user specifications.	K2, K3	PSO2
CO 3	Design database schema considering normalization and relationships within database.	K2, K3	PSO3
CO 4	Develop PL/SQL Programs.	K2, K3	PSO2& PSO8
CO 5	Develop triggers, procedures and Cursors.	K3, K4	PSO8

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC		NON - SCHOLASTIC	MARKS		
C1	C2	C3	CIA	ESE	Total
20	15	5	40	60	100

C1 – Average of Two Model Test Marks

C2 - Average of Program Completion and Record Work

C3 - Non-Scholastic

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	3	2	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

II B.Sc. Information Technology
SEMESTER –III
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19P3ACI3	DIGITAL PRINCIPLES AND COMPUTER ARCHITECTURE	Lecture	5	5

COURSE DESCRIPTION

The course content plays a vital role in making the students to understand the basic digital components.

COURSE OBJECTIVES

To make the student familiar with digital logic, data representation and functional design of arithmetic and logic unit that is capable of performing arithmetic operations and floating point operations.

UNITS

UNIT –I DIGITAL LOGIC CIRCUITS   (15HRS.)

Digital Computers- Logic Gates- Boolean algebra: Complement of a Function -K-Map Simplification: Product of Sum Simplification- Don't Care Condition. Combinational Circuits: Half Adder- Full Adder. Flip- Flops: SR Flip Flop- D Flip Flop - JK Flip Flop - T Flip Flop -**Edge Triggered Flip Flops (Self Study).**

UNIT –II DATA REPRESENTATION   (15 HRS.)

Data Types: Number Systems- Octal and Hexadecimal Numbers- Decimal Representation- Alphanumeric Representation. Complements:1's

Complement- 2's Complement- Subtraction of Unsigned Numbers. Fixed-Point Representation: Integer Representation-Arithmetic Addition- Arithmetic Subtraction –Overflow- Decimal Fixed Point Representation.**Floating Point Representation - Other Binary Codes (Self Study)**- Error Detection Codes.

UNIT –III DIGITAL COMPONENTS   (15 HRS.)

Integrated Circuits – Decoders - Encoders – Multiplexers - Registers - Shift Register - Binary Counters.Memory Unit: Random - Access Memory - Read Only Memory - **Types of ROMs (Self Study).**General Register Organization:Control Word - Examples of Micro operations - Stack Organization- Reverse Polish Notation - Evaluation of Arithmetic Expression

UNIT –IV CENTRAL PROCESSING UNIT   (15 HRS.)

Instruction formats: Three Address Instruction - Two Address Instruction – One Address Instruction- Zero Address Instructions - RISC Instruction - Addressing Modes: Types. Data Transfer and Manipulation: Data Transfer Instruction - Data Manipulation Instructions - Arithmetic Instruction –Logical and Bit Manipulation Instructions - Shift Instruction – Program Control : Program Interrupts - Types of Interrupt- Reduced Instruction Set Computer: **CISC Characteristics- RISC Characteristics(Self Study).**

UNIT –V MEMORY ORGANIZATION   (15 HRS.)

Memory Hierarchy - Main Memory: RAM and ROM Chips.Auxiliary Memory: **Magnetic Disks- Magnetic Tape(Self Study)** - Associative Memory. Cache Memory: Associative Mapping - Direct Mapping – Set Associative Mapping. Virtual Memory: Address Space and Memory Space.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Recent Development computer architecture.

TEXT BOOK:

1. Mano, M. Morris.Computer system architecture.Prentice-Hall of India, 2013.Chapter 1.1 - 1.6, 3.1 - 3.6, 2.1-2.7, 8.1- 8.8, 12.1-12.6

REFERENCES:

1. Dasgupta, Subrata. Computer Architecture: A Modern Synthesis.Volume 1, Foundations.John Wiley & Sons, 1989.

2. Hwang, Kai, and Faye A. Briggs.Computer architecture and parallel processing.McGraw-Hill, 1985.

OPEN EDUCATIONAL RESOURCES:

1. Binary Numbers Representation - Tutorialspoint

   https://www.tutorialspoint.com/.../digital_circuits_binary_numbers_representation.htm

2. Digital Electronics and Logic Design Tutorials - Geeksforgeeks

   https://www.geeksforgeeks.org/digital-electronics-logic-design-tutorials

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 DIGITAL LOGIC CIRCUITS				
1.1	Syllabus Discussion, Digital Computers	1	Discussion	Black Board
1.2	Logic Gates, Boolean algebra	2	Chalk & Talk	Black Board
1.3	Complement of a Function	1	Lecture	LCD
1.4	K-Map Simplification -POS	2	Chalk & Talk	Smart Board
1.5	K-Map Simplification -SOP	1	Chalk & Talk	Black Board
1.6	Don't Care Condition, Combinational Circuits	2	Discussion	Google classroom
1.7	Half Adder, Full Adder	2	Lecture	PPT & White

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
				board
1.8	Flip- Flops Introduction	1	Chalk & Talk	Black Board
1.9	SR Flip Flop, D Flip Flop	2	Chalk & Talk	Black Board
1.10	JK Flip Flop , T Flip Flop	2	Chalk & Talk	Black Board
1.11	Edge Triggered Flip Flops (Self Study)	1	Discussion	Google classroom
UNIT -2	**DATA REPRESENTATION**			
2.1	Number Systems- Octal and Hexadecimal Numbers	1	Lecture	PPT & White board
2.2	Decimal Representation, Alphanumeric Representation	2	Chalk & Talk	Green Board
2.3	Complements: 1's Complement- 2's Complement	2	Chalk & Talk	Black Board
2.4	Subtraction of Unsigned Numbers	2	Chalk & Talk	Black Board
2.5	Fixed- Point Representation: Integer Representation	2	Chalk & Talk	Black Board
2.6	Arithmetic Addition, Arithmetic Subtraction	2	Chalk & Talk	Green Board
2.7	Overflow	2	Lecture	Google classroom
2.8	Decimal Fixed Point Representation.	2	Chalk & Talk	Black Board
2.9	Floating Point Representation. Other Binary Codes. (Self Study)	1	Discussion	Google classroom
2.10	Error Detection Codes	1	Chalk & Talk	Black Board
UNIT - 3	**DIGITAL COMPONENTS**			
3.1	Integrated Circuits	1	Discussion	PPT & White board
3.2	Decoders, Encoders	2	Chalk & Talk	Green Board
3.3	Multiplexers	1	Chalk & Talk	Black Board
3.4	Registers, Shift Register	2	Chalk & Talk	Black Board
3.5	Binary Counters	2	Discussion	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.6	Memory Unit: Random Access Memory, Read Only Memory	1	Lecture	PPT & White board
3.7	Types of ROMs (Self Study)	1	Discussion	Google classroom
3.8	General Register Organization, Control Word	1	Chalk & Talk	Black Board
3.9	Examples of Micro operations	2	Chalk & Talk	Black Board
3.10	Stack Organization	2	Chalk & Talk	Black Board
3.11	Reverse Polish Notation, Evaluation of Arithmetic Expression	2	Chalk & Talk	Black Board
UNIT - 4	**CENTRAL PROCESSING UNIT**			
4.1	Instruction formats: Three Address Instruction	1	Discussion	PPT & White board
4.2	Two Address Instruction, One Address Instruction	2	Chalk & Talk	Green Board
4.3	Zero Address Instructions, RISC Instruction	2	Chalk & Talk	Black Board
4.4	Addressing Modes: Types.	2	Chalk & Talk	Black Board
4.5	Data Transfer and Manipulation: Data Transfer Instruction, Data Manipulation Instructions	2	Discussion	Black Board
4.6	Arithmetic Instruction	1	Lecture	PPT & White board
4.7	Logical and Bit Manipulation Instructions	2	Discussion	Black Board
4.8	Shift Instruction, Program Control	2	Chalk & Talk	Black Board
4.9	Program Interrupts - Types of Interrupt	1	Chalk & Talk	Black Board
4.10	Reduced Instruction Set Computer	1	Chalk & Talk	Black Board
4.11	CISC Characteristics- RISC Characteristics (Self Study)	1	Discussion	Google classroom
UNIT - 5	**MEMORY ORGANIZATION**			
5.1	Memory Hierarchy	2	Lecture	PPT & White

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
				board
5.2	Main Memory: RAM and ROM Chips	2	Chalk & Talk	Black Board
5.3	Auxiliary Memory: Magnetic Disks- Magnetic Tape (Self Study)	2	Discussion	Google classroom
5.4	Associative Memory. Cache Memory	3	Chalk & Talk	Black Board
5.5	Associative Mapping - Direct Mapping	2	Chalk & Talk	Black Board
5.6	Set Associative Mapping	2	Chalk & Talk	Black Board
5.7	Virtual Memory	2	Chalk & Talk	Black Board
5.8	Address Space and Memory Space	2	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Recent Development computer architecture	2	Discussion	Google classroom
6.2	Recent Development computer architecture	3	Lecture	PPT & White board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %

Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

Nos

C1 - Test (CIA 1) 1 - 10 Mks

C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain about digital logic circuits.	K1	PSO1& PSO2
CO 2	Compute simple arithmetic operations for fixed-point and floating-point addition and subtraction.	K1, K2 & K3	PSO2
CO 3	Understand various digital components.	K1 & K3	PSO4
CO 4	Construct an instruction set capable of performing a specified set of operations.	K3	PSO3& PSO6
CO 5	Demonstrate a memory system for a given set of specifications.	K3& K4	PSO6

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1

CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
♦ Weakly Correlated -**1**

COURSE DESIGNER:

10. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

II B.Sc.

SEMESTER –IV

For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	21I3SB1	EXCEL USING VBA	Lecture	2	2

COURSE DESCRIPTION

This course is designed to learn the best practices followed in industries to develop simple projects.

COURSE OBJECTIVES

To facilitate the student to understand excel with VBA concepts and make them to automate the backend processing.

UNITS

UNIT –I VBA BASICS : (6HRS.)

Getting started with Excel VBA – Working with cells, rows, and columns to copy/paste, count, find the last used row or column, assigning formulas, working with sheets- Communicate with the end-user with message boxes and take user input with input boxes.

UNIT –II CONDITIONAL LOGIC &LOOPS : (6HRS.)

Comparing values and conditions, if statements and select cases - Repeat processes with For loops and Do While or Do Until Loops

UNIT –IIIARRAYS (6HRS.)

Dynamic arrays- populating arrays-Array declaration and resizing-Jagged arrays.

UNIT –IVEVENTS &SETTINGS : (6HRS.)

Trigger procedures to run when certain events happen like activating a worksheet, or changing cell values- Speed up your code and improve the user experience

UNIT –VFUNCTIONS &PROCEDURES : (6HRS.)

Public variables, functions, and passing variables to other procedures- Programmatically work with series of values without needing to interact with Excel objects.

LAB PROGRAMS :

1. Working with cells

2. Naming Ranges

3. Working with Input box and Message box

4. Decision making and Looping

5. Work with arrays

6. Using Named Range in VBA

7. Conditional Formatting using VBA

8. Functions and Procedures.

9. Working with Events

10. Error handlers

TEXT BOOKS:

"Excel 2019 Power Programming with VBA", by Micheal Alexander, Dick Kusleika, Wiley Publishers Pvt., Ltd.,

REFERENCES :

"Excel VBA Programming for Dummies", by John Walkenbach, Wiley Publisher, ISBN : 9781118490389,

"Excel 2016 Power Programming with VBA", by Micheal Alexander, Richard Kusleika, Wiley Publishers, ISBN : 9781119067726.

OPEN EDUCATIONAL RESOURCE:

https://goalkicker.com/ExcelVBABook

https://www.automateexcel.com/learn-vba-tutorial/

https://www.tutorialspoint.com/vba/vba_excel_macros.htm

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1		VBA BASICS		
1.1	Getting started with Excel VBA – Working with cells, rows, and columns to copy/paste, count, find the last used row or column	2	Lecture	Green Board Charts
1.2	Assigning formulas, working with sheets	1	Chalk & Talk	Green Board
1.3	Communicate with the end-user with message boxes and	1	Chalk & Talk	Green Board
1.4	Take user input with input boxes.	1	Discussion	Google Classroom
UNIT -2 CONDITIONAL LOGIC & LOOPS				
2.1	Comparing values and conditions	2	Lecture	Green Board Charts

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
2.2	if statements and select cases	1	Chalk & Talk	Green Board
2.3	Repeat processes with For loops and Do While	2	Chalk & Talk	Green Board
2.4	Do Until Loops	1	Discussion	Google Classroom
UNIT -3SWINGS MENUS				
3.1	Dynamic arrays	1	Chalk & Talk	Black Board
3.2	populating arrays	1	Chalk & Talk	LCD
3.3	Array declaration and resizing.	2	Lecture	Smart Board
3.4	Jagged arrays	2	Discussion	Google Classroom
UNIT -4EVENTS & SETTINGS				
4.1	Trigger procedures to run when certain events happen like activating a worksheet,	3	Chalk & Talk	Black Board
4.2	or changing cell values- Speed up your code and improve the user experience	3	Lecture	Smart Board
UNIT -5FUNCTIONS & PROCEDURES				
5.1	Public variables, functions, and passing variables to other procedures-	3	Lecture	Smart Board
5.2	Programmatically work with series of values without needing to interact with Excel objects.	3	Chalk & Talk	Black Board

Levels	C1 Session-wise Average 5 Mks.	C2 Better of W1, W2 5+5=10 Mks.	C3 M1+M2 15 Mks	C4 MID-SEM TEST 5 Mks	Total Scholastic Marks 35 Mks.	Non Scholastic Marks C5 5 Mks.	CIA Total 40Mks.	% of Assessment
K1	5	-	-	2 ½	-		-	-
K2	-	5	4	2 ½	5		5	12.5 %
K3	-	-	3	5	12		12	30 %
K4	-	-	3	5	9		9	22.5%
Non Scholastic	-	-	-	-	9		9	22.5 %
Total	5	5	10	15	35	5	40	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC				NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	CIA	ESE	Total
5	10	15	5	5	40	60	100

C1 – Average of Two Session Wise Tests

C2 – Average of Two Monthly Tests

C3 - Mid Sem Test

C4 – Best of Two Weekly Tests

C5 – Non - Scholastic

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand fundamentals of VBA	K1	PSO1
CO 2	Apply different conditional logics and loops	K1 & K3	PSO1,PSO4
CO 3	Build forms with interactivity	K2 & K3	PSO2,PSO4
CO 4	Apply Events and Setting in Excel sheets.	K2 & K3	PSO2,PSO4
CO 5	Develop Procedures and Array concepts.	K3	PSO4

Mapping COs Consistency with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	3	2	2	1	1	1
CO2	3	3	3	2	2	2	2	1
CO3	3	3	3	2	2	1	2	2
CO4	3	3	3	1	2	2	2	2
CO5	3	3	3	1	1	1	3	1

Mapping of COs with Pos

CO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	1	1	1	1	1	1
CO2	1	1	3	1	2	1	1
CO3	1	2	1	3	1	2	1
CO4	1	1	1	1	1	3	1
CO5	1	1	1	1	1	3	3

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**
♦WeaklyCorrelated -**1**

COURSE DESIGNER:
1. **Staff Name: MRS. V. MAGESHWARI**

Forwarded By

HOD'S Signature
& Name

II B.Sc. Information Technology
SEMESTER –IV
For those who joined in 2022 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	22I4CC7	PROGRAMMING IN JAVA	Lecture	6	4

COURSE DESCRIPTION

This course enable the students to build object oriented java programs using the concept of abstraction, encapsulation, exception handling, packages, interfaces, threads and AWT controls. It also imparts the ability to develop projects in java with JDBC connectivity.

COURSE OBJECTIVES

To acquaint the students with various techniques of Java Programming and help them to create effective programs in this language.

UNITS

UNIT – I :JAVA EVOLUTION & OVERVIEW   (17 Hrs)

Java history – Java Features – Java Support system – Java Environment- Simple Java Program – An Application with two classes – Java Program Structure – Java Tokens – Java statements –Installing and configuring Java –Implementing a Java program – Java virtual machine –Command Line Arguments

Constants, variables, and Data types: Introduction-Constants-Variables-Data types –Declaration of variables- Giving values to variables-Scope of variables-symbolic constants-Type casting – Getting values of variables-standard default values.

UNIT –II: BRANCHING, LOOPING & CLASSES   (17

HRS.)

Decision Making and Branching: Introduction-Decision Making with if statements- simple if statements- the If Else Statement-Nesting of If Else Statements- The else if Ladder- The switch Statement- The ?: Operator

Decision Making and Looping : Introduction- The while Statement-The do statement- The for Statement- Jumps in Loops- Labeled Loops.

Classes, Objects and Methods: Introduction- Defining a class- Field declaration- method declaration - Creating Objects- Accessing Class Members- Constructors- Methods Overloading- Static Members- Nesting of Methods- Inheritance- Overriding Methods- Final Variables and Methods- Final Classes- Finalizer Methods- Abstract Methods and Classes- Visibility Control.

UNIT –III:ARRAYS , INTERFACE & PACKAGES   (17 HRS.)

One dimensional arrays – creating an array – Two dimensional array –Strings – Vectors –Wrapper classes.

Defining Interface – Extending interface – Implementing interface – Accessing interface variables.

Java API Packages – Using system packages – Naming conventions- Creating package- Accessing a package – using a package – Adding class to a package – Hiding classes.

UNIT –IVMULTITHREADING,EXCEPTIONS& APPLETS   (17 HRS.)

MULTITHREADING : Life cycle of Thread – Using Thread Methods – Thread Exceptions –Thread Priority –Synchronization – Implementing the'runnable' interface.

EXCEPTIONS : Types of Errors –Exceptions –Syntax of exception handling code – Multiple catch statement –Using finally statements –Throwing our own exceptions .

APPLET: Building Applet code - Applet Life cycle- Creating an Executable Applet – Designing a web page – Applet tag –Adding applet to HTML file –Passing Parameter to Applet – Displaying Numerical Values –Getting Input

from the user – Event Handling.

UNIT –V AWT& JDBC   (17 HRS.)

AWT   : Events-Listeners-Event   Handling   Methods-Labels-Button Control-Checkbox   Control-radio   button   control-Choice   control-List control-Scrollbars-Flow Layout- **Border Layout(Self Study).**

JAVA DATABASE CONNECTIVITY : Establishing a Connection-Creation of Data Tables-Entering Data into the tables _ Table Updating-Use of Prepared Statement-   Obtaining   Metadata-Using   Transaction-Scrollable   Result sets-**Stored Procedure (Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Latest Trends in Java Technologies (Angular, React)

TEXT BOOK:

1. E.   Balagurusamy,   "   Programming   with   JAVA",6th   Edition, 2019,McGraw Hill Education,
2. Muthu, C. "Programming with JAVA." Vijay Nicole Imprints, Chennai (2004).Chapters: 25, 8, 16, 9, 10, 11, 18, 19

REFERENCES:

1. Horstmann,   Cay   S.,   and   Gary   Cornell.Core   Java: Advanced Features.Vol. 2.Pearson Education, 2013.
2. Naughton, Patrick, and Herbert Schildt. "The complete reference java 2." (2003).
3. Arnold, Ken, et al. The Java programming language.Vol. 2. Reading: Addison-wesley, 2000.
4. Schildt, Herbert. "Java: the complete reference." (2017)

WEB REFERNCES :

1. Java Tutorial :

https://www.tutorialspoint.com/java/

2. Java Tutorial For Beginners: Learn in 7 Days

https://www.guru99.com/java-tutorial.html

COURSE CONTENTS & LECTURE SCHEDULE

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT – I CLASSES & OBJECTS				
1.1	Class fundamentals, Declaring objects, Assigning object reference variables, introducing methods	5	Chalk & Talk	Black Board
1.2	Constructors, this keyword, finalize() method	4	Chalk & Talk	Black Board
1.3	overloading methods, using object as parameters, Argument passing, returning object, Recursion	4	Lecture	PPT& White board
1.4	Nested &Inner Classes, Inheritance & Polymorphism, Inheritance	3	Lecture	Smart Board
1.5	Method overriding (Self Study)	1	Discussion	Black Board
UNIT – II: PACKAGES, INTERFACE & EXCEPTION HANDLING				
2.1	Packages, Access Protection	4	Chalk & Talk	Black Board
2.2	Importing Packages, Interfaces	5	Chalk & Talk	Black Board
2.3	Exception Handling Function	4	Lecture	PPT& White board
2.4	Exception types, using try & catch	3	Lecture	Smart Board
2.5	Uncaught exception (Self Study)	1	Discussion	Black Board
UNIT – III: MULTITHREADING PROGRAMMING				
3.1	Life cycle of thread, Creating & Running Threads	4	Chalk & Talk	Black Board
3.2	Methods in thread classes, java. Lang, PACKAGES: Type wrapper-The number class	4	Chalk & Talk	Black Board
3.3	The byte, short, integer and Long classes, the float and Double classes	3	Lecture	PPT& White board
3.4	The character class, The Boolean	3	Lecture	Smart

	class, the process class, the runtime class			Board
3.5	The system class, the object class, the math class	2	Lecture	Black Board
3.6	String Buffer class (Self Study)	1	Discussion	Black Board
UNIT – IV : ABSTRACT WINDOW TOOLKIT - I				
4.1	Events, Listeners, Event Handling Methods, Labels, Button Control	4	Chalk & Talk	Black Board
4.2	Checkbox Control, radio button control, Choice control, List control, Scrollbars, Flow Layout	4	Chalk & Talk	Black Board
4.3	Border Layout (Self Study)	1	Discussion	Black Board
4.3	ABSTRACT WINDOW TOOLKIT - II :Windows & frames, Menus, Dialogs, Mouse Events and their Listener	2	Lecture	PPT& White board
4.3	Adapter Classes, Inner classes, Anonymous Inner classes	2	Lecture	Smart Board
4.4	SWING: JApplet class, Icons, JLabel Control, JTextfield Control, JButton Control, JCheckbox	2	Chalk & Talk	Black Board
4.5	Control, JRadioButton Control, Menus, JSlider Control, JComboBoxConrol, JgtabbedPane Control, JScrollPane Control	2	Chalk & Talk	Black Board
UNIT – V : JAVA DATABASE CONNECTIVITY				
5.1	JAVA DATABASE CONNECTIVITY: Establishing a Connection, Creation of Data Tables	4	Chalk & Talk	Black Board
5.2	Entering Data into the tables, Table Updating-Use of Prepared Statement	3	Chalk & Talk	Black Board
5.3	Obtaining Metadata, Using Transaction, Scrollable Result sets	3	Lecture	PPT& White board
5.4	Stored Procedure (Self Study)	1	Discussion	Black Board
5.5	SERVLETS: Servlet and Dynamic Web pages, Life cycle of a servlet, A simple servlet	4	Lecture	Smart Board

UNIT –6 DYNAMISM				
6.1	Latest Trends in Java Technologies - Angular	2	Discussion	Black Board
6.2	Latest Trends in Java Technologies - React	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the concepts of Object-Oriented Programming & Java Programming Constructs.	K1 & K2	PSO1& PSO2
CO 2	Understand basic concepts of Java such as operators, classes, objects, inheritance, packages, Enumeration and various keywords.	K1 & K2	PSO1, PSO2 &PSO3
CO 3	Understand the concept of exception handling and Input/output operations.	K1 & K2	PSO1& PSO2
CO 4	Design Java & Java applet based applications.	K2 & K3	PSO6
CO 5	Analyze & Design the concept of Event Handling and Abstract Window Toolkit.	K3 & K4	PSO3 &PSO8

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
          ♦ Weakly Correlated -**1**

COURSE DESIGNER:
   1. **Staff Name: V.MAGESHWARI**

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

II B.Sc. Information Technology
SEMESTER –IV
For those who joined in 2022 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	22I4CC8	LAB IV - JAVA PROGRAMMING	Practical	6	3

COURSE DESCRIPTION

This course gives hands on experience, practices the concepts of java programming language, and develops solutions for real world problems.

COURSE OBJECTIVES

To give programming skills on various concepts in JAVA.

PROGRAM LIST

1. Programs using Operator, Assignment Operator, Increment& Decrement Operator, Logical Operator and Bitwise Operator.

2. Programs Using IF, Conditional Operator, Array, While Loop, For Loop, Switch& Break and Continue.

3. Programs using the concept Overloading.

4. Programs using the concept Inheritance and Constructor

5. Programs using the concept Interface and Overriding .

6. Programs using the concept Built-in and User defined Exception Handling and Threads.

7. Programs using the concept Threads.

8. Programs using the concept String Handling.

9. Programs using the concept Packages

10. Programs for creating Applet.

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1	Programs using Operator, Assignment Operator, Increment& Decrement Operator, Logical Operator and Bitwise Operator.	9	Demonstration	Desktop PC
2	Programs Using IF, Conditional Operator, Array, While Loop, For Loop, Switch& Break and Continue.	9	Demonstration	Desktop PC
3	Programs using the concept Overloading.	9	Demonstration	Desktop PC
4	Programs using the concept Inheritance and Constructor	9	Demonstration	Desktop PC
5	Programs using the concept Interface and Overriding .	9	Demonstration	Desktop PC
6	Programs using the concept Built-in and User defined Exception Handling and Threads.	9	Demonstration	Desktop PC
7	Programs using the concept Threads.	9	Demonstration	Desktop PC
8	Programs using the concept String Handling.	9	Demonstration	Desktop PC
9	Programs using the concept Packages	9	Demonstration	Desktop PC
10	Programs for creating Applet.	9	Demonstration	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED

CO 1	Implement Object Oriented programming concept using operators and control Structures.	K2, K3	PSO1& PSO2
CO 2	Design java programs using inheritance, interfaces and packages.	K2, K3	PSO1, PSO2 & PSO3
CO 3	Implement exception handling mechanism and multithreading concept.	K2, K3	PSO1, PSO2 & PSO3
CO 4	Design Java applet based applications.	K2, K3	PSO6 & PSO8
CO 5	Design applications to Handle Events using AWT components.	K3, K4	PSO6 & PSO8

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

EVALUATION PATTERN

SCHOLASTIC		NON - SCHOLASTIC	MARKS		
C1	**C2**	**C3**	**CIA**	**ESE**	**Total**
20	**15**	**5**	**40**	**60**	**100**

C1 – Average of Two Model Test Marks

C2 - Average of Program Completion and Record Work

C3 - Non-Scholastic

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1

CO2	2	3	2	2	2	2	2	1
CO3	2	2	3	2	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
         ♦ Weakly Correlated -**1**

COURSE DESIGNER:

   1. Staff Name: Mrs. V. Mageshwari

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

II B.Sc. Information Technology
SEMESTER –IV
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	21AC4ACI4	ACCOUNTING IN DECISION MAKING	Lecture	5	5

COURSE DESCRIPTION

Students gain knowledge of cost accounting principles, procedures and techniques used to solve business problems and make financial decisions

COURSE OBJECTIVES

To gain in-depth knowledge in various techniques accounting decisions

UNITS

UNIT –I   COST ACCOUNTING   (10HRS.)

Cost Accounting – Definition- Principles of cost accounting –Relationship of cost accounting with financial accounting and Management Accounting - Classification Cost – Methods of costing.

UNIT –II   COST SHEET   (20 HRS.)

Cost Sheet - Elements of Cost - Statement of cost and profit

UNIT –III: MATERIALS   (15 HRS.)

Materials- Meaning of Material Control- Objectives – Advantages- Issue of Materials- Methods of Pricing-FIFO-LIFO

UNIT –IV MARGINAL COSTING   (17HRS.)

 Marginal costing-Meaning-Contribution-Breakeven point-P/V Ratio (Simple Problems).

UNIT –V BUDGETARY CONTROL   (15 HRS.)

Budgetary control- Meaning and need for budget- Cash budget-Sales budget- Flexible budget (only simple problems)

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5HRS.)

Real- time Applications in accounts

TEXT BOOKS:

1. Cost Accounting – T.S.Reddy & Y.Hari Prasad Reddy, Margham Publications, 2017 (reprint)
2. Management Accounting – Dr.A.Ramachandran & Dr.Srinivasan, 2016

REFERENCES:

1. Cost and management accounting-S.P.Jain &K.L.Narang, Kalyani Publications, 2017
2. Management Accounting, B.S. Raman, United Publishers, 2016

OPEN EDUCATIONAL RESOURCES:

1. C Tutorial - Learn C Programming - W3schools.in

   https://www.w3schools.in/c-tutorial.

2. C Tutorial

   https://www.tutorialspoint.com/cprogramming/index.htm

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 COST ACCOUNTING				
1.1	Cost Accounting – Definition- Principles of cost accounting	4	Discussion	Black Board
1.2	Relationship of cost accounting with financial accounting and Management Accounting	4	Chalk & Talk	Black Board
1.3	Classification Cost – Methods of	2	Lecture	LCD

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	costing.			
UNIT -2 COST SHEET				
2.1	Cost Sheet	10	Lecture	PPT & White board
2.2	Elements of Cost	5	Chalk & Talk	Green Board
2.3	Statement of cost and profit	5	Chalk & Talk	Black Board
UNIT – 3 MATERIALS				
3.1	Materials- Meaning of Material Control- Objectives	5	Discussion	PPT & White board
3.2	Advantages- Issue of Materials-	5	Chalk & Talk	Green Board
3.3	Methods of Pricing-FIFO-LIFO	5	Chalk & Talk	Black Board
UNIT – 4 MARGINAL COSTING				
4.1	Marginal costing-Meaning-Contribution	5	Discussion	PPT & White board
4.2	Breakeven point	5	Chalk & Talk	Green Board
4.3	P/V Ratio (Simple Problems).	5	Chalk & Talk	Black Board
UNIT – 5 BUDGETARY CONTROL				
5.1	Budgetary control- Meaning and need for budget	5	Lecture	PPT & White board
5.2	Cash budget-Sales budget	5	Chalk & Talk	Black Board
5.3	Flexible budget (only simple problems)	5	Lecture	Black Board
UNIT –6 DYNAMISM				
6.1	Real- time Applications IN ACCOUNTS	5	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5

	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the basic concepts cost accounting	K1	PSO1& PSO2
CO 2	Identify and Apply cost elements	K1, K2	PSO2
CO 3	Understand various material	K1 & K3	PSO4

	control methods		
CO 4	Solve marginal costing problems	K1, K2 &K3	PSO3
CO 5	Summarize the concepts of Budgetary control	K2 & K4	PSO6

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
          ♦ Weakly Correlated -**1**

Forwarded By

Employability 100%

HOD's Signature
& Name

II B.Sc. Information Technology

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I4SB2	ANALYTICAL SKILLS	Lecture	2	2

COURSE DESCRIPTION

This course content plays a vital role for clearing any competitive exam and it covers all the Quantitative Aptitude topics and an in-depth understanding of this subject.

COURSE OBJECTIVES

To prepare the student with the range of skills which facilitate them to enhance their employability quotient and do well in the professional space.

UNITS

UNIT –I QUANTITATIVE APTITUDE – I   (6HRS.)

Different Number System, More on Numbers, Ratio and Proportion, Percentage, Approximate Value Calculation.

UNIT –II QUANTITATIVE APTITUDE – II   (6 HRS.)

Mixtures, Averages, Time and Distance, Problems Based on Trains, Rowing Downstream and Upstream.

UNIT –III QUANTITATIVE APTITUDE – III   (6 HRS.)

Pipes and Cistern, Time and Work, Clocks, Mensuration Area and Volume.

UNIT –IV VERBAL REASONING- I   (6 HRS.)

SERIES: Locating Wrong Number, Probability, Data Interpretation, Data

Sufficiency Series Completion, Analogy, Classification, Coding – Decoding, Blood Relations

UNIT –V VERBAL REASONING- II   (6 HRS.)

Direction Sense Test, Alphabetical Quibble, Number,Ranking& time, Sequence test, Mathematical Operations, Logical Sequence of Words, Arithmetical Reasoning.

REFERENCES:

1. Aggarwal, R. S. Quantitative Aptitude. S. Chand, 2017.

OPEN EDUCATIONAL RESOURCES :

1. Quantitative Aptitude Tutorial - Tutorialspoint

https://www.tutorialspoint.com/quantitative_aptitude/index.htm

2. Aptitude Tutorial - Students Tutorial

   https://www.studentstutorial.com/aptitude/aptitude-tutorial.php/aptitude-tutorial.php

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**QUANTITATIVE APTITUDE – I**			
1.1	Syllabus Discussion	1	Discussion	Black Board
1.2	Different Number System	1	Chalk & Talk	Black Board
1.3	More on Numbers	1	Chalk & Talk	Black Board
1.4	Ratio and Proportion	1	Chalk & Talk	Black Board
1.5	Percentage	1	Chalk & Talk	Black Board
1.6	Approximate Value Calculation	1	Chalk & Talk	Black Board
UNIT -2	**QUANTITATIVE APTITUDE – II**			
2.1	Mixtures	1	Chalk & Talk	Black Board
2.2	Averages	1	Chalk &	Black

Modul e No.	Topic	No. of Lecture s	Teaching Pedagogy	Teaching Aids
			Talk	Board
2.3	Time and Distance	1	Chalk & Talk	Black Board
2.4	Problems Based on Trains	1	Chalk & Talk	Black Board
2.5	Rowing Downstream and Upstream	2	Chalk & Talk	Black Board
UNIT - 3	**QUANTITATIVE APTITUDE – III**			
3.1	Pipes and Cistern	1	Chalk & Talk	Black Board
3.2	Races	1	Chalk & Talk	Black Board
3.3	Games	1	Chalk & Talk	Black Board
3.4	Time and Work	1	Chalk & Talk	Black Board
3.5	Clocks	1	Chalk & Talk	Black Board
3.6	Mensuration Area and Volume	1	Chalk & Talk	Black Board
UNIT - 4	**VERBAL REASONING- I**			
4.1	Locating Wrong Number	1	Chalk & Talk	Black Board
4.2	Probability	1	Chalk & Talk	Black Board
4.3	Data Interpretation, Data Sufficiency Series Completion	1	Chalk & Talk	Black Board
4.4	Analogy, Classification	1	Chalk & Talk	Black Board
4.5	Coding – Decoding	1	Chalk & Talk	Black Board
4.6	Blood Relations, Puzzle Test	1	Chalk & Talk	Black Board
UNIT - 5	**VERBAL REASONING- II**			
5.1	Direction Sense Test, Alphabetical Quibble	1	Chalk & Talk	Black Board
5.2	Ranking & time	1	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
5.3	Sequence test	1	Chalk & Talk	Black Board
5.4	Mathematical Operations	1	Chalk & Talk	Black Board
5.5	Logical Sequence of Words	1	Chalk & Talk	Black Board
5.6	Arithmetical Reasoning	1	Chalk & Talk	Black Board

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the short cut methods.	K1& K2	PSO1& PSO3
CO 2	Apply general mathematical techniques.	K2 & K3	PSO1& PSO3
CO 3	Develop their critical thinking.	K2 & K3	PSO1& PSO3
CO 4	Recall the formulas.	K1& K2	PSO1& PSO2
CO 5	Solve the sums by applying shortcut methods with time management.	K2 & K3	PSO8

CIA

Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC		NON - SCHOLASTIC	MARKS		
C1	C2	C3	CIA	ESE	Total
20	15	5	40	60	100

C1 – Average of Two Model Test Marks

C2 – Assignment, quiz and OBT

C3 - Non-Scholastic

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	3	2	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
         ♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

Forwarded By

V. Mageshwari

HOD'S Signature

& Name

III B.Sc. Information Technology
SEMESTER – V
For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I5CC9	.NET PROGRAMMING	Lecture	5	5

COURSE DESCRIPTION

This course introduces .NET Framework and imparts various concepts in .NET framework.

COURSE OBJECTIVES

To facilitate the students to understand, the features of .NET framework and use the design of the language to develop robust software.

UNITS

UNIT –I INTRODUCTION   (14HRS.)

.NET Framework - Development Environment: Console, Windows – Variables and expressions - Flow Control - Functions - Debugging and Error Handling -Classes - Collections, Comparisons and Conversions – Generics.

UNIT –II WINDOWS PROGRAMMING   (14 HRS.)

Controls(Button, Label , Link Label, Radio Button, Check Box, Text Box, Rich Text Box, List Box, Checked List Box, List View, Tabbed), Forms (Menus and Tool Bars, SDI and MDI applications, Building MDI applications.

UNIT –III WEB PROGRAMMING   (14 HRS.)

ASP.NET Web Pages - Server Controls - ASP.NET server controls: Types of control, ASP.NET state management engine. Web.config and global.asax files. - Input Validation - State Management - Master Pages - Navigation

UNIT –IV ASP.NET& ADO.NET   (14HRS.)

Data Controls - Data Bound Controls - XML - LINQ - LINQ with Databases - ADO.NET architecture- ASP.NET data control - Data source control. Crystal reports. LINQ: Operators, implementations, LINQ to objects, XML, ADO.NET

UNIT –V ADVANCED CONCEPTS   (14 HRS.)

ASP.NET Security: Authentication, Authorization, Impersonation, ASP.NET provider model -WPF - WCF – WWF

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

JQuery- AJAX

TEXT BOOK:

1. Beginning Visual C# 2010, K. Watson, C. Nagel, J.H Padderson, J.D. Reid, M.Skinner, Wrox (Wiley) 2010. (Unit I and II).

REFERENCES:
1. Bruce Barstow, Tony Martin, "Visual Basic. NET in 60 Minutes a Day Bible", Willey Dreamtech India (P) Ltd., 1st Edition, 2003.
2. Visual Basic .Net Programming Black Book by STEVEN HOLZNER, Dreamtech Press
3. Dean Alan Hume, "Fast ASP.NET Websites", Manning Publications Co, 2013.

Digital Open Educational Resources (DOER):
1. Asp and Asp.net Tutorials
https://www.w3schools.com/asp/default.ASP
2. Asp.net Tutorial

https://www.tutorialspoint.com/asp.net/index.htm

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1INTRODUCTION				
1.1	The Origin of .Net Technology	1	Discussion	Black Board
1.2	Common Language -Runtime (CLR)	2	Chalk & Talk	Black Board
1.3	Common Type System (CTS)	2	Lecture	LCD
1.4	Common Language Specification(CLS)	2	Discussion	Google classroom
1.5	Garbage Collector	3	Chalk & Talk	Black Board
1.6	Memory Management	2	Chalk & Talk	Black Board
1.7	Visual studio .NET (Self Study).	2	Discussion	Google classroom
UNIT -2 C#				
2.1	Building Blocks of C#	1	Lecture	PPT & White board
2.2	Type Conversion	1	Chalk & Talk	Green Board
2.3	Functions	2	Chalk & Talk	Black Board
2.4	Delegates - Error Handling	2	Chalk & Talk	Black Board
2.5	Exception Handling – Classes in c#	2	Chalk & Talk	Black Board
2.6	Access modifiers	2	Chalk & Talk	Black Board
2.7	Interface – Collections	2	Lecture	Google classroom
2.8	Generics	1	Chalk & Talk	Black Board
2.9	As Operator (Self Study)	1	Discussion	Google classroom
UNIT – 3 Window Programming and Data Access				
3.1	Controls	2	Chalk &	Green

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
			Talk	Board
3.2	Common Controls (Self Study)	1	Discussion	Google classroom
3.3	Container controls – Menus and Toolbars –	2	Chalk & Talk	Black Board
3.4	Deployment	1	Chalk & Talk	Black Board
3.5	File System	2	Discussion	Black Board
3.6	XML	1	Lecture	PPT & White board
3.7	Databases and ADO.NET	1	Lecture	Black Board
3.8	ADO.NET classes	2	Chalk & Talk	Black Board
3.9	Data Binding	2	Chalk & Talk	Black Board
UNIT – 4 ASP.NET				
4.1	Features	2	Discussion	PPT & White board
4.2	Life Cycle (Self Study)	1	Chalk & Talk	Green Board
4.3	Server Controls – Control Structure	2	Chalk & Talk	Black Board
4.4	Functions – HTML Events – ASP.NET web control events	2	Chalk & Talk	Black Board
4.5	Event driven Programming – Postback - Reading from databases	3	Discussion	Black Board
4.6	HTML Server control - Web Server controls	2	Lecture	Green Board
4.7	Validation Controls	2	Discussion	Black Board
UNIT – 5 DOT NET ASSEMBLIES				
5.1	State Management	2	Lecture	PPT & White board
5.2	View State (Self Study)	1	Discussion	PPT & White board
5.3	Control State	2	Lecture	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
5.4	Hidden Field	2	Chalk & Talk	Black Board
5.5	Session	2	Chalk & Talk	Black Board
5.6	Cookies	2	Chalk & Talk	Black Board
5.7	Session Events	1	Chalk & Talk	Black Board
5.8	Web Services	1	Chalk & Talk	Black Board
5.9	XML – SOAP	2	Chalk & Talk	Black Board
5.10	Building ASP.NET Web Services	2	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	MVC Framework	2	Discussion	Black Board
6.2	WPF, AJAX	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks

C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain the .NET framework	K1, K2	PSO1
CO 2	Apply the general programming structure of vb.net in developing software solutions based on user requirements.	K2 & K3	PSO1 &PSO2
CO 3	Design basic GUI applications using .NET.	K2 & K3	PSO3& PSO5
CO 4	Demonstrate advanced features of .NET programming.	K2 & K3	PSO2 &PSO3
CO 5	Develop windows application and web applications in .NET framework analyzing user requirements.	K3& K4	PSO5, PSO7 & PSO8

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
          ♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

III B.Sc. Information Technology
SEMESTER – V
For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I5CC10	LAB V: .NET PROGRAMMING	Practical	6	3

COURSE DESCRIPTION

This course gives hands on experience in C# Programming with dot net.

COURSE OBJECTIVES

To facilitate the students to understand the dot net framework environment and programming concepts in dot net framework.

PROGRAM LIST

1. Program using control statements

2. Program using array

3. Console Application

4. Creating Simple window application

5. Window application with ADO.NET

6. Using ADO.NET to insert, modify, update and delete.

7. Window application using Data Grid for displaying records.

8. Creating Simple web application

9. Creating Web application with ADO.NET

10. Creating Web application with Data Grid

11. Creating Web application with data binding concepts

12. Program implementing validation control

13. XML reading

14. XML writing

COURSE CONTENTS & LECTURE SCHEDULE

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1	Program using control statements	6	Demonstration	Desktop PC
2	Program using array	6	Demonstration	Desktop PC
3	Console Application	6	Demonstration	Desktop PC
4	Creating Simple window application	6	Demonstration	Desktop PC
5	Window application with ADO.NET	6	Demonstration	Desktop PC
6	Using ADO.NET to insert, modify, update and delete.	6	Demonstration	Desktop PC
7	Window application using Data Grid for displaying records.	6	Demonstration	Desktop PC
8	Creating Simple web application	6	Demonstration	Desktop PC
9	Creating Web application with ADO.NET	7	Demonstration	Desktop PC
10	Creating Web application with Data Grid	7	Demonstration	Desktop PC
11	Creating Web application with data binding concepts	7	Demonstration	Desktop PC
12	Program implementing validation control	7	Demonstration	Desktop PC
13	XML reading	7	Demonstration	Desktop PC
14	XML writing	7	Demonstration	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand various application types.	K2& K3	PSO1& PSO2
CO 2	Create dynamic window application.	K2 & K3	PSO2& PSO3
CO 3	Use asp.net controls in web application.	K2 & K3	PSO5 & PSO6
CO 4	Build interactive Webpages.	K2 & K3	PSO5, PSO6 &PSO8
CO 5	Use XML in web application.	K3 & K3	PSO6& PSO8

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC		NON - SCHOLASTIC	MARKS		
C1	C2	C3	CIA	ESE	Total
20	15	5	40	60	100

C1 – Average of Two Model Test Marks

C2 - Average of Program Completion and Record Work

C3 - Non-Scholastic

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	3	2	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
         ♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

III B.Sc. Information Technology
SEMESTER – V
For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I5CC11	SOFTWARE ENGINEERING	Theory	5	3

COURSE DESCRIPTION

This course introduces the basic steps involved in Software Development Life Cycle (SDLC).

COURSE OBJECTIVES

To facilitate the students to analyze risk in software design and quality and to plan, design, develop and validate the software project.

UNITS

UNIT –I SOFTWARE ENGINEERING AND PLANNING (15HRS.)

Size factors – Quality and Productivity Factors – Managerial Issues. Planning a Software Project - Problem definition – Developing a Solution Strategy – Planning the Development Process – Planning an Organizational Structure – **Other Planning Activities (Self Study).**

UNIT –II SOFTWARE COST ESTIMATION   (15 HRS.)

Software Cost Estimation - **Software Cost Factors(Self Study)** – Software Cost Estimation Techniques – Staffing-Level Estimation – Estimating Software Maintenance Costs.

UNIT –III SOFTWARE REQUIREMENTS (14 HRS.)

The Software Requirements Specification – Formal Specification Techniques – Languages and Processors for Requirements Specification.

UNIT –IV SOFTWARE DESIGN AND IMPLEMENTATION (14 HRS.)

Software Design - Fundamental Design Concepts – Modules and Modularization Criteria – Design Notations – Design Techniques – Detailed Design Considerations – Real-Time and Distributed System Design – Test Plans – Milestones, Walkthroughs, and Inspections - Design Guidelines - Structured Coding Techniques - Single Entry, Single Exit constructs – **Coding Style – Documentation Guidelines (Self Study).**

UNIT –V VERIFICATION, VALIDATION AND MAINTENANCE (14 HRS.)

Verification and Validation Techniques - Quality Assurance – Static Analysis – Symbolic Execution – Unit Testing and Debugging – System Testing – Formal Verification - Software Maintenance - Enhancing Maintainability During Development – Managerial Aspects of Software Maintenance – Configuration Management – **Source-Code Metrics – Other Maintenance Tools and Techniques (Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 HRS.)

Agile Model – Scrum - Extreme Programming

TEXT BOOK:

1. Fairley, Richard. Software engineering concepts. McGraw-Hill, Inc., 1985.Chapters 1, 2, 3, 4, 5, 6, 8.1 - 8.7, 9.1 - 9.5

REFERENCES:

1. Pressman, Roger S. Software engineering: a practitioner's approach. Palgrave macmillan, 2005.
2. Humphrey, Watts S. A discipline for software engineering. Addison-Wesley Longman Publishing Co., Inc., 1995.

OPEN EDUCATIONAL RESOURCES:

1. Software Engineering Tutorial - Tutorialspoint

https://www.tutorialspoint.com/software_engineering/index.htm

2. Software Engineering Tutorial - Tutorialride.com

https://www.tutorialride.com/software-engineering/software-engineering-tutorial.htm

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 SOFTWARE ENGINEERING AND PLANNING				
1.1	Size factors	2	Discussion	Black Board
1.2	Quality and Productivity Factors	2	Chalk & Talk	Black Board
1.3	Managerial Issues	2	Lecture	LCD
1.4	Planning a Software Project	2	Lecture	LCD
1.5	Problem definition	2	Chalk & Talk	Black Board
1.6	Developing a Solution Strategy	1	Chalk & Talk	Black Board
1.7	Planning the Development Process	1	Chalk & Talk	Black Board
1.8	Planning an Organizational Structure	1	Chalk & Talk	Black Board
1.9	Other Planning Activities (Self Study)	1	Discussion	Google classroom
UNIT -2 SOFTWARE COST ESTIMATION				
2.1	Software Cost Estimation	2	Lecture	PPT & White board
2.2	Software Cost Factors (Self Study)	2	Discussion	Google classroom
2.3	Software Cost Estimation Techniques	3	Chalk & Talk	Black Board
2.4	Software Cost Estimation Techniques	3	Discussion	Google classroom
2.5	Staffing-Level Estimation	2	Lecture	Google classroom
2.6	Estimating Software Maintenance Costs	2	Chalk & Talk	Black Board
UNIT – 3 SOFTWARE REQUIREMENTS				
3.1	The Software Requirements Specification	2	Discussion	PPT & White board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.2	Formal Specification Techniques	2	Chalk & Talk	Green Board
3.3	Relational Notation	2	Discussion	Black Board
3.4	State oriented notation	2	Chalk & Talk	Black Board
3.5	Languages and Processors for Requirements Specification	2	Chalk & Talk	Black Board
3.6	PSL/PSA, RSL/REVS, GIST	2	Lecture	PPT & White board
3.7	SADT, SSA	2	Chalk & Talk	Black Board
UNIT – 4 SOFTWARE DESIGN AND IMPLEMENTATION				
4.1	Software Design, Fundamental Design Concepts, Modules and Modularization Criteria	2	Discussion	PPT & White board
4.2	Design Notations, Design Techniques	2	Chalk & Talk	Green Board
4.3	Detailed Design Considerations	2	Chalk & Talk	Black Board
4.4	Real-Time and Distributed System Design	2	Chalk & Talk	Black Board
4.5	Test Plans, Milestones, Walkthroughs, and Inspections	2	Chalk & Talk	Black Board
4.6	Design Guidelines, Structured Coding Techniques, Coding Style	2	Discussion	Black Board
4.7	Documentation Guidelines (Self Study)	2	Chalk & Talk	Black Board
UNIT – 5 VERIFICATION, VALIDATION AND MAINTENANCE				
5.1	Verification and Validation Techniques	2	Lecture	PPT & White board
5.2	Quality Assurance, Static Analysis, Symbolic Execution	2	Discussion	PPT & White board
5.3	Unit Testing and Debugging	2	Lecture	Black Board
5.4	System Testing, Formal Verification	2	Chalk & Talk	Black Board
5.5	Software Maintenance, Managerial Aspects of Software Maintenance	2	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
5.6	Configuration Management, Source-Code Metrics	2	Chalk & Talk	Black Board
5.7	Other Maintenance Tools and Techniques (Self Study)	2	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Agile Model	2	Discussion	Black Board
6.2	Scrum, Extreme Programming	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %

K2	-	-	8	4	-	-	**12**	20 %
K3	-	-	-	-	20	-	**20**	33.33 %
K4	-	-	-	4	-	10	**14**	23.34 %
Total	**5**	**5**	**8**	**12**	**20**	**10**	**60**	**100 %**

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	**10**	**5**	**5**	**5**	**5**	**40**	**60**	**100**

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

The best out of two will be taken into account

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand how to plan a software project.	K1& K2	PSO1& PSO2
CO 2	Analyze the cost estimate and problem complexity using various estimation techniques.	K2, K3 & K4	PSO3
CO 3	Prepare the SRS, Design document, Project plan of a given software system.	K2, K3 & K4	PSO2& PSO3
CO 4	Apply Software design and implementation ideas in S/W project development.	K2, K3 & K4	PSO2& PSO3
CO 5	Generate test cases using White Box testing and Black Box testing.	K2, K3 & K4	PSO7& PSO8

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1

CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
          ♦ Weakly Correlated -**1**

COURSE DESIGNER:
    1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**
Forwarded By

V. Mageshwari

HOD'S Signature
& Name

Skill Development 100%

III B.Sc. Information Technology
SEMESTER – V

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I5CC12	OPERATING SYSTEM	Lecture	5	5

COURSE DESCRIPTION

This course content plays a vital role in making the students to understand the basic operating system concept.

COURSE OBJECTIVES

To introduce basic concepts and principles of operating systems, which include memory management, process management, file management.

UNITS

UNIT –I OPERATING SYSTEM OVERVIEW   (15HRS.)

Operating System Overview: Operating System Objectives and **Functions(Self Study)**, the Evolution of Operating System, Major Achievements.Processes: Process, Process states- Two state, Five State, Suspended Process.

UNIT –II CONCURRENCY   (15 HRS.)

Concurrency: Principles of Concurrency, Mutual Exclusion – Hardware Support, Semaphores, Monitors, Message Passing. **Deadlock:Principles of Deadlock(Self Study)**, Deadlock Prevention, Deadlock Detection, Deadlock Avoidance.

UNIT –III MEMORY MANAGEMENT & SCHEDULING   (15 HRS)

Memory Management: Memory Management Requirements, Memory Partitioning, Paging, Segmentation.**Uni-processor Scheduling**: Types of Processors Scheduling, Scheduling Algorithm, Scheduling Criteria, FIFO, Round Robin, Shortest Process Next, **Shortest Remaining Time (Self Study)**, Highest Response Ratio.

UNIT –IV I/O MANAGEMENT AND DISK SCHEDULING   (15 HRS.)

I/O Management and Disk Scheduling: I/O devices, Organization of the I/O Function, I/O Buffering, DiskScheduling.**File Management:** Overview, File Organization and Access, File Directories, **File Sharing (Self Study)**.

UNIT –V LINUX FILE STRUCTURE, SHELL & FILE MANAGEMENT OPERATIONS   (15 HRS.)

The Shell: The Command Line, Command Line Editing, Filename Expansion: *, ?, [ ], Standard Input/output and Redirection, Pipes |,Redirecting and Piping the Standard Error: >&, 2>. Jobs: Background, Kills, and Interruptions.**Linux Files, Directories:** The File Structure, Listing, Displaying, and Printing Files: ls, cat, more, less, and lpr, Managing Directories: mkdir, rmdir, ls, cd, and pwd, File and **Directory Operations: find, cp, mv, rm, and ln (Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Recent advancements in Operating System (Ubuntu, MAC OS, Apple iOS, Android OS)

TEXT BOOK:

1. Stallings, William. Operating systems: internals and design principles. Boston: Prentice Hall, 7th edition, 2014. Chapters: 1.1-1.3, 2.1-2.2, 4.1-4.5, 5.1 - 5.4, 6.1 - 6.4, 8.1-8.2, 10.1 -10.5, 11.1 - 11.6
2. Petersen, Richard. Linux: the complete reference.McGraw-Hill Professional, 6th edition, 2000.Chapter 3, 6

REFERENCES:

1. Deitel, Harvey M., Paul J. Deitel, and David R. Choffnes.Operatingsystems.Pearson/Prentice Hall, 2008.
2. Madnick, Stuart E., and John J. Donovan. Operating Systems: Instructor's Manual to Accompany Operating Systems. Erg. Bd. McGraw-Hill, 2007.

OPEN EDUCATIONAL RESOURCES :

1. Operating System Tutorial - Tutorialspoint
https://www.tutorialspoint.com/operating_system/index.htm
2. Learn Operating System (os) Tutorial - Javatpoint
https://www.javatpoint.com/os-tutorial
3. Operating System Tutorial | Studytonight
https://www.studytonight.com/operating-system

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 OPERATING SYSTEM OVERVIEW				
1.1	Operating System Overview	1	Discussion	Black Board
1.2	Operating System Objectives	2	Chalk & Talk	Black Board
1.3	Functions (Self Study)	1	Discussion	Google classroom
1.4	The Evolution of Operating System	2	Lecture	PPT & White board
1.5	Major Achievements	1	Chalk & Talk	Black Board
1.6	Process	1	Discussion	Google classroom
1.7	Process states- Two state	3	Chalk & Talk	Black Board
1.8	Process states-Five State	3	Chalk & Talk	Black Board
1.9	Suspended Process	3	Chalk & Talk	Black Board
UNIT -2 CONCURRENCY				
2.1	Concurrency, Principles of Concurrency	1	Lecture	PPT & White board
2.2	Mutual Exclusion	2	Chalk & Talk	Green Board
2.3	Hardware Support, Semaphores	2	Chalk & Talk	Black Board
2.4	Monitors, Message Passing	2	Chalk & Talk	Black Board
2.5	Deadlock	2	Chalk & Talk	Black Board
2.6	Principles of Deadlock (Self Study)	1	Discussion	Google classroom
2.7	Deadlock Prevention	2	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
2.8	Deadlock Detection	3	Chalk & Talk	Black Board
2.9	Deadlock Avoidance	2	Chalk & Talk	Black Board
UNIT - 3 MEMORY MANAGEMENT & SCHEDULING				
3.1	Memory Management, Memory Management Requirements	1	Discussion	PPT & White board
3.2	Memory Partitioning	2	Chalk & Talk	Green Board
3.3	Paging	2	Chalk & Talk	Black Board
3.4	Segmentation	2	Chalk & Talk	Black Board
3.5	Uni-processor Scheduling, Types of Processors Scheduling	2	Discussion	Black Board
3.6	Scheduling Algorithm	1	Lecture	PPT & White board
3.7	Scheduling Criteria	1	Chalk & Talk	Black Board
3.8	FIFO, Round Robin	1	Chalk & Talk	Black Board
3.9	Shortest Remaining Time (Self Study)	1	Discussion	Google classroom
3.10	Highest Response Ratio	2	Chalk & Talk	Black Board
3.11	Shortest Process Next	2	Chalk & Talk	Black Board
UNIT - 4 I/O MANAGEMENT AND DISK SCHEDULING				
4.1	I/O Management and Disk Scheduling	2	Discussion	PPT & White board
4.2	I/O devices	2	Chalk & Talk	Green Board
4.3	Organization of the I/O Function	2	Chalk & Talk	Black Board
4.4	I/O Buffering	2	Chalk & Talk	Black Board
4.5	Disk Scheduling	2	Discussion	Black Board
4.6	File Management	2	Lecture	PPT & White board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.7	File Organization and Access	2	Discussion	Black Board
4.8	File Directories	2	Chalk & Talk	Black Board
4.9	File Sharing (Self Study)	1	Discussion	Google classroom
UNIT - 5 LINUX FILE STRUCTURE, SHELL & FILE MANAGEMENT OPERATIONS				
5.1	The Shell, The Command Line	1	Lecture	PPT & White board
5.2	Command Line Editing	2	Chalk & Talk	Black Board
5.3	Filename Expansion: *, ?, [ ]	2	Discussion	Google classroom
5.4	Standard Input/output and Redirection, Pipes		2	Chalk & Talk	Black Board
5.5	Redirecting and Piping the Standard Error: >&, 2>	2	Chalk & Talk	Black Board
5.6	Jobs: Background, Kills, and Interruptions	2	Chalk & Talk	Black Board
5.7	Linux Files, Directories	2	Chalk & Talk	Black Board
5.8	The File Structure, Listing, Displaying, and Printing Files: ls, cat, more, less, and lpr	2	Chalk & Talk	Black Board
5.9	Managing Directories: mkdir, rmdir, ls, cd, and pwd	1	Chalk & Talk	Green Board
5.10	File and Directory Operations: find, cp, mv, rm, and ln (Self Study)	1	Discussion	Google classroom
UNIT –6 DYNAMISM				
6.1	Recent advancements in Operating System - Ubuntu	1	Discussion	Google classroom
6.2	MAC OS	1	Lecture	Black Board
6.3	Apple iOS	1	Lecture	Black Board
6.4	Android OS	2	Lecture	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholasti	Non Scholasti	CIA Total	% of

	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	c Marks 35 Mks.	c Marks C6 5 Mks.	40Mks.	Assessment
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Describe the evolution, types, structure and functions of operating systems.	K1& K2	PSO1& PSO2
CO 2	Explain techniques involved in concurrency and deadlock.	K1& K2	PSO1
CO 3	Describe memory management and processor scheduling used in operating systems.	K1& K2	PSO4

CO 4	Implement disk scheduling algorithm for a given scenario.	K1, K2& K3	PSO3& PSO4
CO 5	Execute Linux basic commands and shell scripts.	K3& K4	PSO7 & PSO8

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
          ♦ Weakly Correlated -**1**
COURSE DESIGNER:
   1. Staff Name: MRS. V. JANE VARAMANI SULEKHA

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

Skill Development 100%

III B.Sc. Information Technology

SEMESTER – V

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I5ME1	DATA MINING	Lecture	5	5

COURSE DESCRIPTION

This course introduces the basic concepts, principles, methods, implementation techniques, and applications of data mining.

COURSE OBJECTIVES

To facilitate the student to understand the concepts of data mining and to understand various techniques involved in data mining.

UNITS

UNIT –I DATA MINING AND APPLICATIONS   (15HRS.)

Data mining concepts – Database & Data Warehouse - Data Mining functionalities - Technologies used - Data Mining Applications – **Major Issues in Data Mining(Self Study).**

UNIT –II DATA PREPROCESSING   (15 HRS.)

Preprocessing the data – Data cleaning – Data Integration – Data Reduction – Data Transformation and **Data Discretization (Self Study).**

UNIT –III DATA MINING TECHNIQUES (15 HRS.)

Mining Frequent Patterns - Association Rule Mining – The Apriori Algorithm – FP Growth - Correlation Analysis.

UNIT –IV CLASSIFICATION   (15 HRS.)

Classification – Decision Tree induction - Constructing decision tree – ID3 algorithm – Pruning – Bayesian Classification – Rule Based Classification.

UNIT –V CLUSTERING AND ADVANCED DATA MINING CONCEPTS

(15 HRS.)

Cluster Analysis – Clustering Methods – Partitioning Methods - Hierarchical Methods – Density Based Methods – Outlier Analysis – **Web Mining , Text Mining, Mining Multimedia Data and Mining data Streams (Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Artificial Neural Networks - Genetic algorithm

TEXT BOOK:

1. Han, Jiawei, Jian Pei, and MichelineKamber.Data mining: concepts and techniques.Elsevier, 2011.Chapters: 1, 13.3, 3, 6, 8.1- 8.4, 10.1 – 10.4.12.1, 13.1.3

REFERENCES:

1. Pujari, Arun K. Data mining techniques. Universities press, 2001.
2. Adriaans, Pieter, and DolfZantinge. "Data Mining. 1996." Addision-Wesley, Harlow.

OPEN EDUCATIONAL RESOURCES :

1. Data Mining Tutorial - Tutorialspoint

https://www.tutorialspoint.com/data_mining/index.htm

2. Data Mining Tutorial

https://www.tutorialride.com/data-mining/data-mining-tutorial.htm

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 DATA MINING AND APPLICATIONS				
1.1	Data mining concepts	2	Discussion	Black Board
1.2	Database	2	Chalk & Talk	Black Board
1.3	Data Warehouse	2	Lecture	LCD
1.4	Data Mining functionalities	2	Lecture	LCD
1.5	Technologies used	2	Chalk & Talk	Black Board
1.6	Data Mining Applications	2	Chalk & Talk	Black Board
1.7	Major Issues in Data Mining (Self Study)	2	Discussion	Google classroom
UNIT -2 DATA PREPROCESSING				
2.1	Preprocessing the data	2	Lecture	PPT & White board
2.2	Why we need preprocessing	2	Chalk & Talk	Green Board
2.3	Data cleaning	2	Chalk &	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
			Talk	
2.4	Data Integration	2	Discussion	Google classroom
2.5	Data Reduction	2	Chalk & Talk	Black Board
2.6	Data Transformation	2	Chalk & Talk	Black Board
2.7	Data Discretization (Self Study)	2	Lecture	Google classroom
UNIT – 3 DATA MINING TECHNIQUES				
3.1	Mining Frequent Patterns	2	Discussion	PPT & White board
3.2	Association Rule Mining	2	Chalk & Talk	Green Board
3.3	ARM Algorithm	2	Chalk & Talk	Black Board
3.4	The Apriori Introduction	2	Chalk & Talk	Black Board
3.5	Apriori Algorithm	2	Discussion	Black Board
3.6	FP Growth Algorithm	2	Lecture	PPT & White board
3.7	Correlation Analysis	2	Lecture	Black Board
UNIT – 4 CLASSIFICATION				
4.1	Classification	2	Discussion	PPT & White board
4.2	Decision Tree induction	2	Chalk & Talk	Green Board
4.3	Constructing decision tree	2	Chalk & Talk	Black Board
4.4	ID3 algorithm	2	Chalk & Talk	Black Board
4.5	Pruning	2	Discussion	Black Board
4.6	Bayesian Classification	2	Lecture	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.7	Rule Based Classification	2	Chalk & Talk	Black Board
UNIT – 5 CLUSTERING AND ADVANCED DATA MINING CONCEPTS				
5.1	Cluster Analysis	2	Lecture	PPT & White board
5.2	Clustering Methods	2	Discussion	PPT & White board
5.3	Partitioning Methods	2	Lecture	Black Board
5.4	Hierarchical Methods	2	Chalk & Talk	Black Board
5.5	Density Based Methods	2	Chalk & Talk	Black Board
5.6	Outlier Analysis	2	Chalk & Talk	Black Board
5.7	Web Mining , Text Mining, Mining Multimedia Data and Mining data Streams (Self Study)	2	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Artificial Neural Networks	2	Discussion	Black Board
6.2	Genetic algorithm	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1	T2	Quiz	Assignment	OBT/PPT				
	10 Mks.	10 Mks.	5 Mks.	5 Mks	5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %

Levels						Total		
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account***

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Identify data mining tools and techniques in building intelligent machines.	K1& K2	PSO1& PSO2
CO 2	Understand different preprocessing techniques.	K1& K2	PSO3
CO 3	Analyze various data mining algorithms while applying in real time applications.	K4	PSO6
CO 4	Compare various supervised and unsupervised learning techniques in data mining.	K2 & K4	PSO7 & PSO8
CO 5	Illustrate the mining techniques like association, classification and clustering.	K2 & K4	PSO7 & PSO8

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1

CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
         ♦ Weakly Correlated -**1**

COURSE DESIGNER:
   1. **Staff Name: MRS. V. JANE VARAMANI SULEKHA**

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

III B.Sc. Information Technology
SEMESTER – V
For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I5ME2	NETWORK SECURITY	Lecture	5	5

COURSE DESCRIPTION

The course covers the basics of the science of encryption and network security technology. It also provides the knowledge about the various risks that networks are faced with in this day and age, focusing on the various vulnerabilities of systems.

COURSE OBJECTIVES

To provide a framework of knowledge related to mechanisms that makes Information secured over communication channels by adopting various types of cryptographic algorithms.

UNITS

UNIT –I INTRODUCTION   (15HRS.)

Computer Security :   Need for security – Security Approaches – Principles of Security – Types of Attacks. Cryptography: Concepts and Techniques :**Plain text(Self Study)** and Cipher text – Substitution techniques – Transposition techniques

UNIT –II TYPES OF CRYPTOGRAPHY   (15 HRS.)

Encryption and Decryption- Symmetric and Asymmetric Key Cryptography

Symmetric key Algorithm and AES : Introduction – **Algorithm types(Self Study)** and modes – DES

UNIT –III ASYMMETRIC KEY ALGORITHMS (15 HRS.)

Introduction – History – **Overview(Self Study)** – RSA Algorithm – Digital Signature – Digital Certificates.

UNIT –IV INTERNET SECURITY PROTOCOLS (15 HRS.)

Basic concepts – Secure Socket Layer – Transport Layer Security – WAP Security – Security in GSM – **Security in 3G(Self Study)** – Link Security Vs Network Security.

UNIT –V FIREWALLS& IP SECURITY (15 HRS.)

Firewall: Introduction– **Types of Firewalls(Self Study)** - Firewall Configurations

IP security: Introduction – IPSec overview – Authentication Header – ESP – IP Sec Key Management .

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 HRS.)

Current trend in network security (Ransomware. Malware in the Mobile Device Space, IoT Botnets)

TEXT BOOK:

1. Kahate, Atul. Cryptography and network security.Tata McGraw-Hill Education, 2013.

REFERENCES:

1. Stallings, William. Cryptography and network security, 4/E. Pearson Education India, 2006.
2. Stallings, William. Network Security Essentials: Applications and Standards, 4/e. Pearson Education India, 2003.

OPEN EDUCATIONAL RESOURCES :

1. Computer Network Security - Javatpoint

https://www.javatpoint.com/computer-network-security

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 INTRODUCTION				
1.1	Computer Security, Need for security	2	Discussion	Black Board
1.2	Security Approaches, Principles of Security	2	Chalk & Talk	Black Board
1.3	Types of Attacks	2	Lecture	LCD
1.4	Cryptography, Concepts and Techniques	2	Lecture	LCD
1.5	Plain text (Self Study)	2	Discussion	Google classroom
1.6	Cipher text	2	Chalk & Talk	Black Board
1.7	Substitution techniques, Transposition techniques	2	Chalk & Talk	Black Board
UNIT -2TYPES OF CRYPTOGRAPHY				
2.1	Encryption and Decryption	2	Lecture	PPT & White board
2.2	Symmetric and Asymmetric Key Cryptography	2	Chalk & Talk	Green Board
2.3	Symmetric key Algorithm	2	Chalk & Talk	Black Board
2.4	AES	2	Discussion	Google classroom
2.5	Algorithm types (Self Study)	2	Lecture	Google classroom
2.6	DES	2	Chalk & Talk	Black Board
2.7	Modes	2	Chalk & Talk	Black Board
UNIT – 3 ASYMMETRIC KEY ALGORITHMS				
3.1	Introduction	2	Discussion	PPT & White board
3.2	History	2	Chalk & Talk	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.3	Overview (Self Study)	2	Discussion	Black Board
3.4	RSA Algorithm	3	Chalk & Talk	Black Board
3.5	Digital Signature	3	Chalk & Talk	Black Board
3.6	Digital Certificates	2	Lecture	PPT & White board
UNIT – 4 INTERNET SECURITY PROTOCOLS				
4.1	Basic concepts	2	Discussion	PPT & White board
4.2	Secure Socket Layer	2	Chalk & Talk	Green Board
4.3	Transport Layer Security	2	Chalk & Talk	Black Board
4.4	WAP Security	2	Chalk & Talk	Black Board
4.5	Security in GSM	2	Chalk & Talk	Black Board
4.6	Security in 3G (Self Study)	2	Discussion	Black Board
4.7	Link Security Vs Network Security	2	Chalk & Talk	Black Board
UNIT – 5 FIREWALLS & IP SECURITY				
5.1	Firewall, Introduction	2	Lecture	PPT & White board
5.2	Types of Firewalls (Self Study)	2	Discussion	PPT & White board
5.3	Firewall Configurations	2	Lecture	Black Board
5.4	IP security, Introduction	2	Chalk & Talk	Black Board
5.5	IPSec overview	2	Chalk & Talk	Black Board
5.6	Authentication Header	2	Chalk & Talk	Black Board
5.7	ESP, IP Sec Key Management	2	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Current trend in network	2	Discussio	Black

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	security, Ransomware		n	Board
6.2	Malware in the Mobile Device Space, IoT Botnets	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %

Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the basic concepts of security.	K1 & K2	PSO1 & PSO2
CO 2	Analyze various cryptographic algorithms while applying	K1, K2 & K4	PSO2 &

			PSO3
CO 3	Identify Asymmetric based cryptographic algorithms.	K1& K2	PSO3
CO 4	Compare different internet security protocols.	K1& K2	PSO6
CO 5	Summarize the concepts of firewall and IP security.	K3& K4	PSO7 & PSO8

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
     ♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. V. MAGESHWARI**

Forwarded By

T. Leena Prema Kumari

HOD'S Signature

& Name

III B.Sc. Information Technology
SEMESTER – V
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I5SB3	SKILL BASED-BASICS OF HTML-5	Practical	2	2

COURSE DESCRIPTION

This course provides the programming techniques to develop the static web pages.

COURSE OBJECTIVES

To introduce the concepts of designing the web page using HTML, CSS & HTML5.

UNITS

UNIT –I INTRODUCTION   (6HRS.)

Getting Started – Introduction to HTML – The Evolution of HTML – What's in HTML5 – Working with HTML & CSS – Choosing an Editor – Validating your documents - Hosting your website – Introducing the URL.

UNIT II: INTRODUCTION TO HTML   (6 HRS.)

Introduction: Overview of HTML**HTML Tags:** concept of Tag, types of HTML tags, structure of HTML program **Text formatting through HTML:** Paragraph breaks, line breaks, background and BG color attributes **Emphasizing material in a web page:** Heading styles, drawing lines, text styles. **Text styles and other text effects**-centering, spacing, controlling

font size & color **Lists: Using unordered, ordered, definition lists**

Adding Graphics To HTML Documents: Using Image tag, attributes of Image tag, changing width & height of image

UNIT III: TABLES, FRAMES AND LINKING DOCUMENTS

Handling Tables: To define header rows & data rows, use of table tag and its attributes. Use of caption tag

Linking Documents: Concept of hyperlink, types of hyperlinks, linking to the beginning of document, linking to a particular location in a document, Images as hyperlinks

Frames: Introduction To frames, using frames & frameset tags, named frames how to fix the size of a frame, targeting named frames.

UNIT IV: INTRODUCTION TO CSS

Introducing CSS, font attributes, color and background attributes, text attributes, border attributes, margin related attributes, list attributes Using class and span tag , External Style Sheets

UNIT V: INTRODUCTION TO HTML5

Features of HTML5: MIME Types, diving in, Detection techniques, Modernizer: An HTML5 Detection Library, Canvas, Canvas Text, Video Video Formats, Local Storage, Web Workers, Offline Web Applications Geolocation, Input Types, Placeholder Text, Form Autofocus, Microdata

Elements of HTML5: The Doctype, the Root Element, The <head> Element New Semantic Elements in HTML5, Handling of Unknown Elements by the Browsers Headers, Articles, Dates and Times, Navigation, Footers.

Drawing Surface: Introduction to Canvas, Simple Shapes, Canvas Coordinates, paths, Text, Gradients, Images.

Program List:

1. Create a web page using basic HTML tags

2. Create a webpage using Formatting tags

3. Create a webpage using Paragraph alignment tags

4. Create a webpage using the concepts of Lists

5. Create a webpage using Image tags.

6. Create a webpage using Table tags

7. Create a webpage using Hyperlink tags

8. Create a webpage using CSS bordering

9. Create a webpage using CSS Alignment tags

10. Develop a program using HTML5 with scripting

11. Develop a program to implement HTML5 element

TEXT BOOK:

1. Foundation HTML5 with CSS – Craig Cook & Jason Garber, Bytheway Publishing services.

REFERENCES:

1. Responsive Web Design with HTML5 and CSS: Ben Frain, 3rd Edition, Kindle Edition.

2. HTML5 and CSS3 All-in-One For Dummies 3rd Edition, Kindle Edition by Andy Harris.

OPEN EDUCATIONAL RESOURCES:

1. https://www.tutorialspoint.com/html5

2. https://www.w3schools.com/html

3. https://www.javatpoint.com/html5-tutorial

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 INTRODUCTION				
1.1	Getting Started – Introduction to HTML – The Evolution of HTML – What's in HTML5	2	Demonstration	Desktop PC
1.2	Working with HTML & CSS Choosing an Editor	1	Demonstration	Desktop PC
1.3	Validating your documents	2	Demonstration	Desktop PC
1.4	Hosting your website Introducing the URL.	1	Demonstration	Desktop PC
UNIT -2 INTRODUCTION TO HTML				
2.1	HTML Tags: Types of HTML tags, structure of HTML program, Text formatting through HTML	2	Demonstration	Desktop PC
2.2	Emphasizing material in a web page: Heading styles, drawing lines, text styles. Text styles and other text effects-centering, spacing, controlling font size & color	1	Demonstration	Desktop PC
2.3	Lists: Using unordered,	2	Demonstratio	Desktop

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	ordered, definition lists		n	PC
2.4	Adding Graphics To HTML Documents: Using Image tag,attributes of Image tag, changing width & height of image.	1	Demonstration	Desktop PC
UNIT -3 TABLES , FRAMES & LINKS				
3.1	**Handling Tables:** To define header rows & data rows, use of table tag and its attributes. Use of caption tag	1	Demonstration	Desktop PC
3.2	Linking Documents: Concept of hyperlink, types of hyperlinks, linking to the beginning of document.	2	Demonstration	Desktop PC
3.3	Linking to a particular location in a document, Images as hyperlinks.	1	Demonstration	Desktop PC
3.4	Frames: Introduction To frames, using frames & frameset tags, named frames how to fix the size of a frame, targeting named frames.	2	Demonstration	Desktop PC
UNIT -4 INTRODUCTION TO CSS				
4.1	Introducing CSS, font attributes, color and background attributes.	2	Demonstration	Desktop PC

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.2	Text attributes, border attributes, margin related attributes, list attributes	1	Demonstration	Desktop PC
4.3	Using class and span tag, External Style Sheets	1	Demonstration	Desktop PC
UNIT 5 – INTRODUCTION TO HTML5				
5.1	Features of HTML5: An HTML5 Detection Library, Canvas, Canvas Text, Video Formats, Local Storage, Web Workers, Offline Web Applications Geolocation, Input Types, Placeholder Text, Form Autofocus, Microdata	2	Demonstration	Desktop PC
5.2	Elements of HTML5: The Doctype, the Root Element, The <head> Element New.	2	Demonstration	Desktop PC
5.3	Semantic Elements in HTML5, Handling of Unknown Elements by the Browsers Headers, Articles, Dates and Times, Navigation, Footers.	2	Demonstration	Desktop PC
5.4	Drawing Surface: Introduction to Canvas, Simple Shapes, Canvas Coordinates, paths, Text, Gradients, Images.			

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Identify how to create a webpage with basic designing concepts.	K2 & K3	PSO1& PSO2
CO 2	Apply basic tags for table creation and alignments in a static webpage.	K2 & K3	PSO2 &PSO3
CO 3	Design and edit images in the web pages.	K2 & K3	PSO2 &PSO3
CO 4	Apply various tags for the creation of dynamic webpage.	K2 & K3	PSO2 &PSO3
CO 5	Develop effective graphics for web.	K3 & K4	PSO6& PSO8

Mapping COs Consistency with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	1	3	3	2	2	2	2	1
CO3	1	3	3	2	2	2	2	2
CO4	2	3	2	2	2	2	2	2
CO5	1	2	1	1	1	3	1	3

Mapping of COs with Pos

CO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	1	1	1	1	1	1	3
CO2	1	1	1	1	2	3	1
CO3	1	2	1	1	1	3	1
CO4	1	1	1	1	3	1	3
CO5	1	1	1	1	1	3	1

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**
♦WeaklyCorrelated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. T. CHARANYA NAGAMMAL**

Forwarded By

III B.Sc. Information Technology
SEMESTER – V
For those who joined in 2021onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I5SB4	SKILL BASED – WEB PROGRAMMING USING PHP	Practical	2	2

COURSE DESCRIPTION

This is a Web scripting language PHP able tobuild dynamic Web applications. Semantics and syntax of the PHP language, including discussion on the practical problems that PHP solves.

COURSE OBJECTIVES

The objective of this course is to provide the necessary knowledge to design and develop dynamic, database-driven web applications using PHP.

UNITS

Unit 1: PHP in Web   (6 HRS)

Dynamic Content and the Web - PHP and MySQL's Place in Web Development - The components of a PHP Application - Integrating Many Sources of Information - Requesting Data from a Web Page. Developing Locally - working remotely.

Unit II: Introduction to PHP   (6 HRS)

Exploring PHP-PHP and HTML text - coding building blocks.PHP decision making-Expressions - Operator Concepts - Conditionals-Looping. Functions - calling functions - defining functions- Object-Oriented Programming.

Arrays: Array fundamentals. Database basics: Data base design-Structured Query Language

Unit III: PHP with MYSQL   (6 HRS)

Using MySQL: MySQL Database - Managing the Database - Backing up and Restoring Data - Advanced SQL.Getting PHP to talk to MySQL: The process-querying the database with PHP functions - Using PEAR. Working with Forms: Building a form - Templates.

Unit IV:PHP Functions   (6 HRS)

String functions-Date and time functions - File Manipulation – Calling System Calls - Modifying MySQL objects and PH data: Changing database objects from PHP - Manipulating table data-displaying results with Embedded links- presenting a form to add and process in one file - updating data – deleting data – performing a subquery

Unit V: Cookies, Sessions and Access Control   (6 HRS)

Cookies, Sessions and Access Control: Cookies - PHP and HTTP Authentication – sessions - using Auth_HTTP to Authenticate. Security: Session security. Validation and Error handling: Validating user input with JavaScript- Pattern Matching - Redisplaying a form after PHP validation fails. Building a Blog

REFERENCES:

1. Dave W Mercer, Allan Kent, Steven D Nowicki, David Mercer, Dan Squier, Wankyu Choi - Beginning PHP‖, Wiley Publishing, Inc

2. Ivan Bayross -"HTML, DHTML, JavaScript, Pearl & CGI", Fourth Revised Edition, BPB Publication

3. "Programming PHP",RasmusLerdorf and Kevin Tatore, Shroff Publishers & Distributors Pvt.Ltd

4. "Beginning PHP", Dave W Mercer, Allan Kent, Steven D Nowicki, David Mercer, Dan Squier, Wankyu Choi, Wiley Publishing

OPEN EDUCATIONAL RESOURCES:

1. https://www.tutorialspoint.com › php

2. https://www.php.net › manual › tutorial

Program List:

1. Develop a Program with basic expressions.

2. Develop a Program with decision making statements

3. Develop a Program with Looping statements

4. Develop a Program for the implementation of database

5. Develop a Program for database connectivity

6. Develop a Program with string functions

7. Develop a Program with manipulation function.

8. Develop a Program with cookies

9. Develop a Program with session control

10. Develop a Program for authentication process.

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 PHP IN WEB				
1.1	Dynamic Content and the Web PHP and MySQL's Place in Web Development	2	Demonstration	Desktop PC
1.2	The components of a PHP Application - Integrating Many Sources of Information -	1	Demonstration	Desktop PC
1.3	Requesting Data from a Web Page. Developing Locally,	1	Demonstration	Desktop PC

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	working remotely			
UNIT -2 INTRODUCTION TO PHP				
2.1	Exploring PHP-PHP and HTML text - coding building blocks. PHP decision making-Expressions Operator Concepts, Conditionals Looping.	2	Demonstration	Desktop PC
2.2	Functions - calling functions - defining functions-	1	Demonstration	Desktop PC
2.3	Object-Oriented Programming. Arrays: Array fundamentals.	2	Demonstration	Desktop PC
2.4	Database basics: Data base design-Structured Query Language	1	Demonstration	Desktop PC
UNIT -3 PHP WITH MYSQL				
3.1	Using MySQL: MySQL DatabaseManaging the Database .	1	Demonstration	Desktop PC
3.2	Backing up and Restoring Data - Advanced SQL.	1	Demonstration	Desktop PC
3.3	Getting PHP to talk to MySQL: The process-querying the database with PHP functions - Using PEAR	1	Demonstration	Desktop PC
3.4	Working with Forms: Building a form - Templates.	1	Demonstration	Desktop PC
UNIT -4 PHP FUNCTIONS				
4.1	String functions, Date and time functions, File Manipulation Calling System Calls	2	Demonstration	Desktop PC

Modul e No.	Topic	No. of Lecture s	Teaching Pedagogy	Teaching Aids
4.2	Modifying MySQL objects and PH data: Changing database objects from PHP	2	Demonstratio n	Desktop PC
4.3	Manipulating table data-displaying results with Embedded links-	1	Demonstratio n	Desktop PC
4.4	presenting a form to add and process in one file, updating data , deleting data , performing a subquery	1	Demonstratio n	Desktop PC
UNIT -5 COOKIES, SESSION AND ACCESS CONTROL				
5.1	PHP and HTTP Authentication , Sessions - using Auth_HTTP to Authenticate.	1	Demonstratio n	Desktop PC
5.2	Security: Session security.	1	Demonstratio n	Desktop PC
5.3	Validation and Error handling: Validating user input with JavaScript- Pattern Matching	1	Demonstratio n	Desktop PC
5.4	Redisplaying a form after PHP validation fails. Building a Blog	1	Demonstratio n	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Describe fundamentals of webin PHP scripts to handle HTML forms.	K2 & K3	PSO1& PSO2
CO 2	Describe the importance regular expressions including modifiers, operators, and metacharacters	K2 & K3	PSO2 &PSO3
CO 3	Create PHP programs that use various PHP library functions, and that manipulate files and directories	K2 & K3	PSO2, PSO3&PSO7
CO 4	Analyze and solve various database tasks using the PHP language.	K2 & K3	PSO2, PSO3 &PSO7
CO 5	Analyze and solve common Web application tasks by writing PHP programs.	K3 & K4	PSO7& PSO8

Mapping COs Consistency with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	1	3	3	2	2	2	2	1
CO3	1	3	3	2	2	2	3	2
CO4	2	3	3	2	2	2	3	2
CO5	1	2	1	1	1	2	3	3

Mapping of COs with Pos

CO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	1	1	1	1	1	1

CO2	1	3	1	1	2	3	1
CO3	1	2	3	1	1	3	1
CO4	1	1	1	1	3	1	1
CO5	1	1	1	1	1	3	1

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**
♦WeaklyCorrelated -**1**

COURSE DESIGNER:

   Staff Name: MRS.T.CHARANYA NAGAMMAL

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

Skill Development 100%

III B.Sc. Information Technology
SEMESTER – VI
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I6CC13	PYTHON PROGRAMMING	Lecture	5	5

COURSE DESCRIPTION

This course is designed to introduce the python programming language. The focus of the course is to provide students with an introduction to programming, utilities, multitasking, GUI and network applications.

COURSE OBJECTIVES

To acquire Object Oriented Skills and programming skills in core Python.

UNITS

UNIT –I BASICS OF PYTHON PROGRAMMING.   (15HRS.)

Features of Python-History of Python-The Future of Python-Literal Constant-Variables and Identifiers-Data Types-Operators and Expression-Operations on Strings-other Data types.

UNIT –II   DECISION CONTROL STATEMENTS   (15 HRS.)

Introduction to Decision Control Statements-Selection /Conditional Branching Statements-Basic Loop Structures/Iterative Statements-Nested Loops-The Break statement-The Continue statement-The Pass statement-The else statement used with Loops.

UNIT –III FUNCTIONS AND MODULES: (15 HRS.)

Need for Functions-Function declaration and definition -Function

call-Variable Scope and Lifetime-The return statement-More on Defining Functions-Lambda Functions or Anonymous Functions-Documentation Strings-Recursive Functions-Modules-Packages in python-Standard Library Modules-Globals(),Locals(),Reload()-Function Redefinition.

UNIT –IV   PYTHON STRING REVISITED   (15 HRS.)

Concatenating,Appending and Multiplying Strings-Strings are Immutable-String Formatting Operators-Built -in String Methods and Functions- Slice Operation-ord() and chr() functions-in and not in operator-Comparing Strings-Iterating String.

UNIT –V   FILE HANDLING & DATA STRUCTURES   (15 HRS.)

File path-Types of files-Opening and Closing Files-Reading and Writing Files-File Positions-Renaming and Deleting Files-Lists-Dictionaries.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Advanced Concepts of Python (Machine Learning in Python, Data Processing using Python).

TEXT BOOK:

1. **" Python Programming Using Problem Solving Approach"**- ReemaThareja.- Oxford University Press.

REFERENCES:

1. Zelle, John M. Python programming: an introduction to computer science. Franklin, Beedle& Associates, Inc., 2004.

2. Jeeva Jose, SojanLal, P, Introduction to Computing & Problem Solving with Python.

3. Kulkarani, PROBLEM SOLVING AND PYTHON PROGRAMMING, Published by Yes Dee Publishing Pvt Ltd., Edition 2017

OPEN EDUCATIONAL RESOURCES :

1. Python Tutorial

https://www.tutorialspoint.com/python/

2. https://www.w3schools.com/python/python_reference.asp

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT - IINTRODUCTION TO PYTHON PROGRAMMING				
1.1	Problem Solving, Definition of a program, Software Bug, Programming Errors. Algorithms	3	Chalk & Talk	Black Board
1.2	Definition of Algorithm, Characteristics of Algorithm	3	Chalk & Talk	Black Board
1.3	Flowcharts, System Configuration (Self Study)	2	Discussion	Black Board
1.4	Downloading Python, Testing python working properly, Installation of Python on Linux	3	Lecture	Smart Board
1.5	Structure of Python, Keywords, variable, comments, data types, Literals, Constants, Operators, Operator Precedence.	3	Lecture	Black Board
UNIT – II: PYTHON I/P & O/P STATEMENT				
2.1	Input statement in Python, Output statement in Python	3	Chalk & Talk	Black Board
2.2	Python String Formatting Options, Python Math Library.	4	Chalk & Talk	Black Board
2.3	Decision Making, if statement	3	Lecture	PPT& White board
2.4	if- else statement (Self Study)	1	Lecture	Smart Board
2.5	if- else if, else Repetition Statement, for loop	3	Lecture	Black Board
UNIT – IIIUSER – DEFINED FUNCTION				
3.1	Syntax of user defined function, Return statements, Function Arguments in Python	2	Chalk &Talk	Black Board
3.2	Default Parameter, call- by -value vs Call – by – reference in Python	2	Chalk & Talk	Black Board

3.3	Nested function in Python, Closure Function Python	2	Lecture	PPT& White board
3.4	Anonymous Function in Python (Self Study)	1	Lecture	Smart Board
3.5	Function Composition in Python, Recursive Function in Python	1	Lecture	Black Board
3.6	Strings in Python, Reading Strings from Keyboard, Accessing Strings	1	Discussion	Google classroom
3.7	Modifying String in Python, String Concatenation, String updating	2	Chalk & Talk	Green Board
3.8	Iterating through a string, String Membership Operations	2	Discussion	Black Board
3.9	Built – in String Function, Escape Sequence in Python	1	Chalk & Talk	Black Board
UNIT – IV PYTHON LIST				
4.1	Read a List Type from a keyboard, Accessing Elements of a List	2	Chalk & Talk	Black Board
4.2	Modifying Elements of a List, Basic List Operation	2	Chalk & Talk	Black Board
4.3	Built in function, List function, List Duplication and comparison of Two Lists	2	Lecture	PPT& White board
4.4	Accessing Elements of a Tuple	2	Lecture	Smart Board
4.5	Modifying Elements of a Tuple	2	Lecture	Black Board
4.6	Deleting Elements of a Tuple	3	Discussion	Google classroom
4.7	Basic Tuple Operation, Tuple Built-in Functions (Self Study)	1	Discussion	Black Board
UNIT – V PYTHON DICTIONARY				
5.1	Creating a Dictionary and Printing a Dictionary	3	Chalk & Talk	Black Board
5.2	Accessing Dictionary Elements, Modifying a Dictionary, Delete Operations on Dictionary	2	Chalk & Talk	Black Board
5.3	Writing into Files, Reading from Files	2	Lecture	PPT& White board
5.4	Reading Lines from Files (Self Study)	1	Discussion	Black Board

5.5	Stripping Characters from Files, Filename and Paths, Format operator	2	Lecture	Black Board
5.6	Command Line Arguments, Exception in Python, Python Modules, Python Packages	2	Discussion	Google classroom
5.7	Dictionary Key properties, Comparing Two Dictionaries, Python Dictionary Built in functions	2	Chalk & Talk	Green Board
UNIT –6 DYNAMISM				
6.1	Machine Learning in Python	2	Discussion	Black Board
6.2	Data Processing using Python	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	

K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Identify the basic concepts of python program.	K1& K2	PSO1& PSO2
CO 2	Apply the Input and output statements in python.	K2 & K3	PSO1& PSO2
CO 3	Analyze the usage of function control structure.	K3 & K4	PSO3
CO 4	Describe String, List and Tuples.	K2 & K3	PSO3& PSO6
CO 5	Create Python Dictionary and Files.	K2, K3& K4	PSO7 & PSO8

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4

CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
          ♦ Weakly Correlated -**1**

COURSE DESIGNER:
1. **Staff Name: MRS. T. LEENA PREMA KUMARI**

Forwarded By

V. Mageshwari

HOD'S Signature
& Name

III B.Sc. Information Technology
SEMESTER – VI
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I6CC14	LAB VI PYTHON PROGRAMMING	Practical	6	3

COURSE DESCRIPTION

This course content plays a vital role in building the basic programming skill in Python.

COURSE OBJECTIVES

The focus of the lab is to provide students with an introduction to programming, I/O, and visualization using the Python programming language as a practical session. The goal of this course is to train the students to face the industrial requirements.

PROGRAM LIST

1. Python Using String
2. Python Using List
3. Python Using Dictionary
4. Python Using Tuple
5. Python Using Sets
6. Python Using Array
7. Python Using Condition Statements and Loops
8. Python Using Functions

9. Python Using Date Time

10. Python Using Class

11. Python Using Data Structure

12. Python Using Search and Sorting

13. Python Using Recursion

14. Python Using Math

15. Python Using File I/O

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1	Python Using String	6	Demonstration	Desktop PC
2	Python Using List	6	Demonstration	Desktop PC
3	Python Using Dictionary	6	Demonstration	Desktop PC
4	Python Using Tuple	6	Demonstration	Desktop PC
5	Python Using Sets	6	Demonstration	Desktop PC
6	Python Using Array	6	Demonstration	Desktop PC
7	Python Using ConditionStatements and Loops	6	Demonstration	Desktop PC
8	Python Using Functions	6	Demonstration	Desktop PC
9	Python Using Date Time	6	Demonstration	Desktop PC
10	Python Using Class	6	Demonstration	Desktop PC
11	Python Using Recursion	6	Demonstration	Desktop PC
12	Python Using Search and Sorting	6	Demonstration	Desktop PC
13	Python Using Math	6	Demonstration	Desktop PC

14	Python Using Loops	6	Demonstration	Desktop PC
15	Python Using File I/O	6	Demonstration	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Demonstrate the basic concepts of variables expressions.	K2 & K3	PSO1& PSO2
CO 2	Develop basic python programs with I/O operations.	K2 & K3	PSO2, PSO3 & PSO5
CO 3	Develop programs with function control structure.	K2 & K3	PSO2, PSO3& PSO5
CO 4	Apply strings and lists in python.	K2 & K3	PSO3& PSO5
CO 5	Develop python programs with files.	K3 & K4	PSO6, PSO7 & PSO8

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

EVALUATION PATTERN

SCHOLASTIC		NON - SCHOLASTIC	MARKS		
C1	C2	C3	CIA	ESE	Total
20	15	5	40	60	100

C1 – Average of Two Model Test Marks

C2 - Average of Program Completion and Record Work

C3 - Non-Scholastic

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	3	2	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
             ♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. T. LEENA PREMA KUMARI**

V. Mageshwari

HOD'S Signature
& Name

III B.Sc. Information Technology

SEMESTER – VI

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I6CC15	DATA COMMUNICATION AND NETWORKING	Lecture	5	5

COURSE DESCRIPTION

This course is to provide information about various data communication techniques like switching and networking concepts which includes layers and their corresponding protocols.

COURSE OBJECTIVES

To impart knowledge on data communication technologies, protocol and their applications.

UNITS

UNIT –I INTRODUCTION   (14HRS.)

Data communications-components-data representation-data flow. Networks-distributed Processing-Network criteria-Physical structures-Network Models-Categories of Networks-Interconnection of Networks; Internetwork.osi model: Layered Architecture-Peer-to-peer Processes-Encapsulation. Layers in the osi model: Physical layer-Data Link Layer-Network Layer-transport layer-Session Layer-Presentation layer-Application Layer-Summary of layers.TCP/IP Protocol Suite: Physical and Data link layer-Network layer-transport Layer-Application Layers. **Addressing: physical Addresses-Logical Addresses-Port Addresses-Specific Addresses (Self Study).**

UNIT –II SWITCHING   (14 HRS.)

Transmission Media-Guided Media-Twisted pair cable-Coaxial Cable-Fiber-optic cable unguided media: wireless-Radio waves-microwaves-Infrared.

Circuit Switched Networks-Three Phases-Efficiency-Delay-Circuit-Switched Technology in Telephone Networks-Datagram Networks-Routing Table-Efficiency- Delay-Datagram Networks in the Internet-Virtual-Circuit Networks-Addressing-Three Phases-Efficiency-Delay in Virtual-Circuit Networks- **Circuit-Switched Technology in WANs (Self Study).**

DATALINK CONTROL: Framing-Fixed Size Framing-Variable-Size framing. Flow and error control- Protocols: Point-to-point protocol-framing-Transition Phases-Multiplexing-Multilink PPP.

UNIT –III NETWORK LAYER: INTERNET PROTOCOL   (14 HRS.)

INTERNETWORKING-need for Network Layer-internet As a Datagram Network-Internet as a Connectionless Network.IPv4-Dtagram-IPv6-Advantages-Packet format-Extension Headers. Transition from IPv4 To IPv6-Dual Stack-Tunneling-Header Translation. NETWORK LAYER:DELIVERY,FORWARDING AND ROUTING-Delivery-direct versus Indirect delivery-Forwarding- Forwarding Techniques- Forwarding Process-Routing Table. Unicast Routing Protocols-Optimization-Intra-and Inter domain Routing-**Distance Vector routing (Self Study).**

UNIT –IV TRANSPORT LAYER   (14 HRS.)

PROCESS-TO-PROCESS DELIVERY-client/Server paradigm-Multiplexing and Demultiplexing-Connectionless versus Connection-oriented Service-Reliable versus unreliable-Three Protocols. User Datagram Protocol-Well-Known ports of UDP-User datagram-checksum-UDP operation-Use of UDP.TCP-TCP Services-TCP features-Segment-A TCP connection-.SCTP-SCTP Services-SCTP Features-**Packet format (Self Study).**

UNIT –V APPLICATION LAYER   (14 HRS.)

Name space-Flat Name Space-Hierarchical space-domain Name space-Label-domain Name-Domain-distribution of Name space-Hierarchy of name Servers-Zone-Root Server-Primary and secondary servers-DNS in the Internet-generic domains-Country Domains-Inverse domain-DNS Messages-Header. REMOTE LOGGING,ELECTRONIC MAIL,AND FILE TRANSFER-Remote Logging-Telnet-Electronic Mail-Architecture-User Agent-Message Transfer Agent-PoP and IMAP-Web-Based Mail-**File Transfer Protocol-Anonymous FTP (Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Routing Protocols for Ad Hoc Mobile Wireless Networks, Broadband Communications Networks

TEXT BOOK:

1. Forouzan, A. Behrouz. Data communications &networking.Tata McGraw-Hill Education, 2007. Chapters: 1, 2, 3, 7, 8, 11, 19, 20,22, 23, 25, 26.

REFERENCES:

1. Tanenbaum, Andrew S. "Computer Networks Forth Edition." VrijeUniversiteit (2003).
2. Madhulika Jain, Satish Jain, Jain, M. "Data Communication and Networking". BPB Publications, Updated Edition

OPEN EDUCATIONAL RESOURECES:

1. Computer Network Tutorial - Javatpoint
   https://www.javatpoint.com/computer-network-tutorial
2. Computer Network Tutorials
   https://www.geeksforgeeks.org/computer-network-tutorials/

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1INTRODUCTION				

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1.1	Data communications, components, data representation	1	Discussion	Black Board
1.2	Networks, distributed Processing	1	Chalk & Talk	Black Board
1.3	Network criteria, Physical structures	1	Lecture	LCD
1.4	Network Models, Categories of Networks	1	Lecture	LCD
1.5	Interconnection of Networks	1	Chalk & Talk	Black Board
1.6	Internetwork, OSI model, Layered Architecture	2	Chalk & Talk	Black Board
1.7	Peer-to-peer Processes, Encapsulation	1	Discussion	Google classroom
1.8	Layers in the OSI model	2	Chalk & Talk	Black Board
1.9	TCP/IP Protocol Suite	2	Chalk & Talk	Black Board
1.10	Addressing: physical Addresses, Logical Addresses, Port Addresses	1	Chalk & Talk	Black Board
1.11	Specific Addresses (Self Study)	1	Discussion	Google classroom
UNIT -2SWITCHING				
2.1	Transmission Media	1	Lecture	PPT & White board
2.2	Circuit Switched Networks	1	Chalk & Talk	Green Board
2.3	Datagram Networks in the Internet	2	Chalk & Talk	Black Board
2.4	Circuit-Switched Technology in WANs (Self Study).	2	Discussion	Google classroom
2.5	DATALINK CONTROL: Framing-Fixed Size Framing-Variable	2	Chalk & Talk	Black Board
2.6	Size framing, Flow and error control	2	Chalk & Talk	Black Board
2.7	Protocols: Point-to-point protocol	2	Lecture	Google classroom

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
2.8	Transition Phases	1	Chalk & Talk	Black Board
2.9	Multiplexing, Multilink PPP	1	Chalk & Talk	Black Board
UNIT – 3 NETWORK LAYER: INTERNET PROTOCOL				
3.1	INTERNETWORKING, Internet As a Datagram Network	1	Discussion	PPT & White board
3.2	Internet as a Connectionless Network	2	Chalk & Talk	Green Board
3.3	IPv4-Dtagram-IPv6-Advantages	1	Chalk & Talk	Black Board
3.4	Packet format, Extension Headers	2	Chalk & Talk	Black Board
3.5	Transition from IPv4 To IPv6-Dual Stack	2	Discussion	Black Board
3.6	Tunneling, Header Translation	1	Lecture	PPT & White board
3.7	NETWORK LAYER:DELIVERY,FORWARDING AND ROUTING	1	Lecture	Black Board
3.8	Delivery, direct versus Indirect delivery	1	Chalk & Talk	Black Board
3.9	Forwarding, Forwarding Techniques, Forwarding Process	2	Chalk & Talk	Black Board
3.10	Routing Table, Unicast Routing Protocols	2	Chalk & Talk	Black Board
3.11	Optimization, Intra-and Inter domain	1	Chalk & Talk	Black Board
3.12	Routing-Distance Vector routing (Self Study)	1	Discussion	Google classroom
UNIT – 4 TRANSPORT LAYER				
4.1	PROCESS-TO-PROCESS DELIVERY	2	Discussion	PPT & White board
4.2	Multiplexing and Demultiplexing	2	Chalk & Talk	Green Board
4.3	Connectionless versus Connection, Reliable versus unreliable	2	Chalk & Talk	Black Board
4.4	Three Protocols, User Datagram Protocol	2	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.5	UDP operation, Use of UDP	2	Discussion	Black Board
4.6	TCP-TCP Services, TCP features, Segment	1	Lecture	Green Board
4.7	TCP connection	1	Chalk & Talk	Black Board
4.8	SCTP-SCTP Services, SCTP Features	1	Chalk & Talk	Black Board
4.9	Packet format (Self Study)	1	Discussion	Black Board
UNIT – 5 APPLICATION LAYER				
5.1	Name space, Flat Name Space, Hierarchical space, domain Name space	2	Lecture	PPT & White board
5.2	Label, domain Name,Domain, Distribution of Name space	1	Discussion	PPT & White board
5.3	Hierarchy of name Servers	2	Lecture	Black Board
5.4	Zone, Root Server, Primary and secondary servers	2	Chalk & Talk	Black Board
5.5	DNS in the Internet, Country Domains, Inverse domain	2	Chalk & Talk	Black Board
5.6	DNS Messages, Header	2	Chalk & Talk	Black Board
5.7	REMOTE LOGGING,ELECTRONIC MAIL,AND FILE TRANSFER	1	Chalk & Talk	Black Board
5.8	Remote Logging, Telnet-Electronic Mail	1	Chalk & Talk	Black Board
5.9	IMAP-Web-Based Mail	2	Chalk & Talk	Black Board
5.10	File Transfer Protocol-Anonymous FTP (Self Study)	2	Discussion	Black Board
UNIT –6 DYNAMISM				
6.1	Routing Protocols for Ad Hoc Mobile Wireless Networks	2	Discussion	Black Board
6.2	Broadband Communications Networks	3	Discussion	Black Board

INTERNAL - UG

| Levels | C1 | C2 | C3 | C4 | C5 | Total Scholastic Marks | Non Scholastic Marks C6 | CIA Total | % of Assessment |
| | T1 | T2 | Quiz | Assignment | OBT/PPT | | | | |
	10 Mks.	10 Mks.	5 Mks.	5 Mks	5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

| Levels | Section A (i) | Section A (ii) | Section B | Section C | Section D | Section E | Total | |
	5 Mks.	5 Mks	8 Mks.	12 Mks	20 Mks.	10 Mks.	60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Describe the components of a data communications system.	K1& K2	PSO1& PSO2
CO 2	Identify key considerations in selecting various switching techniques and various transmission media in networks.	K1& K2	PSO1& PSO2
CO 3	Describe the various types of Protocols in Network layer and their features.	K1& K2	PSO3 &PSO4
CO 4	Illustrates the functionality of transport layer and their corresponding protocols.	K1, K2& K3	PSO3 & PSO6
CO 5	Analyze different usage of	K3& K4	PSO7

	application layer protocols.		

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
       ♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. V. MAGESHWARI**
Forwarded By

V. Mageshwari

HOD'S Signature
& Name

III B.Sc. Information Technology
SEMESTER –VI
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	21I6ME3	CLOUD TECHNOLOGY	Lecture	5	5

COURSE DESCRIPTION

This course facilitates the students to understand, analyze the various applications of cloud tool and also provide solutions for cloud security and storage.

COURSE OBJECTIVES

To impart the knowledge about the Computations done in cloud, its architecture and to build their own cloud.

UNITS

UNIT –I UNDERSTANDING CLOUD COMPUTING   (14 HRS.)

Origin and Influence- Basic concepts and terminology-goals and benefits-Risks and challenges.fundamental concepts and models: **Roles and Boundaries-Cloud Characteristics-Cloud Delivery Models (Self Study).**

UNIT –II CLOUD ENABLING TECHNOLOGY   (14 HRS.)

Broad band Network and Internet Architecture-Data center Technology-Virtualization Technology-Web Technology-Multitenant Technology-**Service Technology (Self Study)**.

UNIT –III FUNDAMENTAL CLOUD SECURITY   (14 HRS.)

Basic terms and Concepts-Threat Agents-Cloud Security Threats.**Cloud Infrastructure Mechanism:** Virtual server-cloud storage devices-cloud usage monitor-Resource replication-**readymade Environment(Self Study).**

UNIT –IV SPECIALIZED CLOUD MECHANISMS   (14 HRS.)

Automated Scaling Listener-Load balancer-SLA monitor-Pay-per-use monitor-Audit monitor. Hypervisor-**Multi Device Broker-state management database (Self Study)-**Remote Administration System-Resource Management System-SLA Management System-Billing Management System.

UNIT –V CLOUD COMPUTING ARCHITECTURE   (14 HRS.)

Workload Distribution Architecture-Resource Pooling Architecture-Cloud Bursting Architecture-Redundant Storage Architecture.ADVANCED CLOUD ARCHITECTURES:Hypervisor clustering architecture-**Load balanced virtual server instances architecture(Self Study)-**-Zero downtime architecture-cloud balancing architecture.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (14HRS.)

   Virtual server-cloud storage devices.

TEXT BOOK:
1. Erl, Thomas, Ricardo Puttini, and ZaighamMahmood.CLOUD COMPUTING: CONCEPTS, TECHNOLOGY &ARCHITECTURE.Pearson Education, 2013.CHAPTER 3.1-3.4, 4.1-4.4, 5.1-5.6, 6.1-6.3, 7.2-7.6, 8.1-8.10,9.1-9.4,10.1-10.4, 10.5-10.8, 11.1, 11.2, 11.6, 11.8.

REFERENCES:
1. Buyya, Rajkumar, James Broberg, and Andrzej M. Goscinski, eds. Cloud computing: Principles and paradigms. Vol. 87.John Wiley & Sons, 2010.
2. Rhoton, John. "Cloud Computing Explained: Implementation Handbook for Enterprises. 2009." Recursive Limited.
3. Linthicum, David S. Cloud computing and SOA convergence in your enterprise: a step-by-step guide. Pearson Education, 2009.

Digital Open Educational Resources (DOER):
1. Learn Cloud Computing Tutorial - Java point
   https://www.javatpoint.com/cloud-computing-tutorial
2. Cloud Computing Tutorial For Beginners
   https://www.guru99.com/cloud-computing-for-beginners.html

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT – I UNDERSTANDINGCLOUDCOMPUTING				
1.1	Origin and Influence	4	Chalk & Talk	Black Board
1.2	Basic concepts and terminology, goals and benefits	4	Chalk & Talk	Black Board
1.3	Risks and challenges	4	Lecture	PPT& White board
1.4	Roles and Boundaries-Cloud Characteristics-Cloud Delivery Models (Self Study).	2	Discussion	Black Board
UNIT – IICLOUDENABLINGTECHNOLOGY				
2.1	Broad band Network and Internet Architecture	3	Chalk & Talk	Black Board
2.2	Data center Technology	3	Chalk & Talk	Black Board
2.3	Virtualization Technology, Web Technology	4	Lecture	PPT& White board
2.4	Multitenant Technology	2	Lecture	Smart Board
2.5	Service Technology (Self Study)	2	Discussion	Black Board
UNIT – III FUNDAMENTALCLOUDSECURITY				
3.1	Basic terms and Concepts, Threat Agents	3	Chalk & Talk	Black Board
3.2	Cloud Security Threats	3	Chalk & Talk	Black Board
3.3	Cloud InfrastructureMechanism:Virtual server	2	Lecture	PPT& White board
3.4	cloud storage devices, cloud	2	Lecture	Smart

	usage monitor			Board
3.5	Resource replication	2	Chalk & Talk	Black Board
3.6	Readymade Environment (Self Study)	2	Discussio n	Black Board
UNIT – IV SPECIALIZEDCLOUDMECHANISMS				
4.1	Automated Scaling Listener, Load balancer	2	Chalk & Talk	Black Board
4.2	SLAmonitor, Pay-per-use monitor, Audit monitor	1	Chalk & Talk	Black Board
4.3	Fail over system, Hypervisor, Resource cluster	2	Chalk & Talk	Black Board
4.4	Multi Device Broker-state management database (Self Study)	1	Lecture	PPT& White board
4.5	Adapter Classes, Inner classes, Anonymous Inner classes	2	Lecture	Smart Board
4.6	Cloud security mechanism: Encryption	2	Discussio n	Black Board
4.7	Hashing	2	Chalk & Talk	Black Board
4.8	Digitalsignature, Public key Infrastructure	2	Chalk & Talk	Black Board
UNIT – V CLOUD COMPUTING ARCHITECTURE				
5.1	Identity and access management	3	Chalk & Talk	Black Board
5.2	single sign on, Cloud Based security groups	3	Chalk & Talk	Black Board
5.3	Hardened Virtual Server Images	2	Lecture	PPT& White board
5.4	Fundamental cloud architecture	2	Lecture	Smart Board
5.5	Workload Distribution Architecture, Resource Pooling Architecture	2	Discussio n	Black Board
5.6	Cloud Bursting Architecture-Redundant Storage Architecture (Self Study)	2	Discussio n	Black Board
UNIT –6 DYNAMISM				
6.1	Server less Computing	2	Discussio n	Black Board

6.2	Omni-Cloud, Quantum Computing	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Quiz 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand fundamental concepts of cloud service and deployment models.	K1& K2	PSO1& PSO2
CO 2	Identify the importance of virtualization along with their technologies.	K1& K2	PSO3
CO 3	Analyze different cloud computing Services.	K3 & K4	PSO6
CO 4	Analyze the components and the security in cloud.	K3 & K4	PSO6

CO 5	Illustrate different design & develop backup strategies for cloud data based on features.	K3 & K4	PSO6, PSO7 & PSO8

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
          ♦ Weakly Correlated -**1**

COURSE DESIGNER:
1. **Staff Name: MRS. T. LEENA PREMA KUMARI**

V. Mageshwari

HOD'S Signature

Skill Development 100%

III B.Sc. Information Technology

SEMESTER –VI

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	21I6ME4	MOBILE COMMUNICATION	Lecture	5	5

COURSE DESCRIPTION

This course gives the ability to acquire the knowledge about the technologies in mobile computing and its security issues.

COURSE OBJECTIVES

To obtain knowledge on Mobile Computing Concepts and emerging technologies and applications.

UNITS

UNIT –I INTRODUCTION (15 HRS.)

Mobile Computing – Dialogue Control – Networks – Middleware & Gateways - MOBILE COMPUTING ARCHITECTURE: History of computers and Internet – Architecture for mobile computing – **Three-tier architecture (Self Study).**

UNIT –II MOBILE COMPUTING THROUGH TELEPHONY (15 HRS.)

Evaluation of telephony – Multiple access procedures – Satellite Communication Systems. – EMERGING TECHNOLOGIES: Introduction – **Blue Tooth(Self Study)** – RFID – WiMAX – Mobile IP

UNIT –III GSM & GPRS (15 HRS.)

Global System for mobile communications – GSM Architecture – GSM Entities – Call routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GPRS and packet data network –

GPRS network architecture – GPRS network operations – Data services in GPRS – Application for GPRS- **Limitations(Self Study).**

UNIT –IV WIRELESS APPLICATION PROTOCOL & WIRELESS LAN   (15 HRS.)

Introduction –WAP – MMS- GPRS Application –Wireless LAN: Introduction - Wireless LAN Advantages – IEEE 802.11 Standards – Wireless LAN Architecture – Mobility in Wireless LAN-Deploying Wireless LAN   -Mobile Adhoc Networks and Sensor networks **(Self Study).**

UNIT –V CDMA AND SECURITY   (15 HRS.)

Spread spectrum technology – CDMA vs. GSM – **Wireless Data(Self Study)** – Third generation networks – Applications on 3G. SECURITY ISSUES IN MOBLIE COMUTING: Information Security – Security Techniques & Algorithms.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Recent Trends in Mobile Computing (Business Intelligence (BI) Mobile Apps, IoT, Non-Removable Battery and Memory).

TEXT BOOK:
1. Talukdar, Asoke K. Mobile Computing, 2E.Tata McGraw-Hill Education, 2010.Chapter 1.1 - 1.6, 2.1, 2.2 - 2.5, 3.1 - 3.3, 4.1 - 4.5, 5.1 - 5.5, 5.7, 7.1 - 7.7, 8.1-8.4,9.1, 9.2, 9.4 - 9.7, 10.1-10.7,20.1 - 20.3.

REFERENCES:
1. Stüber, Gordon L., and Gordon L. Stèuber.Principles of mobile communication.Vol.2. Norwell, Mass, USA: Kluwer Academic, 1996.
2. Schiller, Jochen H. Mobile communications.Pearson education, 2003.

OPEN EDUCATIONAL RESOURCES :
1. Mobile Communication Tutorial - Javatpoint
https://www.javatpoint.com/mobile-communication-tutorial

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 INTRODUCTION				
1.1	Mobile Computing, Dialogue Control	3	Chalk & Talk	Black Board
1.2	Networks, Middleware & Gateways	3	Lecture	PPT& White board
1.3	MOBILE COMPUTING ARCHITECTURE: History of computers and Internet	3	Lecture	Black Board
1.4	Architecture for mobile computing	3	Chalk & Talk	Black Board
1.5	Three-tier architecture (Self Study)	2	Discussion	Black Board
UNIT -2MOBILE COMPUTING THROUGH TELEPHONY				
2.1	Evaluation of telephony	2	Chalk & Talk	Black Board
2.2	Multiple access procedures	3	Chalk & Talk	Black Board
2.3	Satellite Communication Systems	3	Lecture	PPT& White board
2.4	EMERGING TECHNOLOGIES, RFID	2	Lecture	Smart Board
2.5	Blue Tooth (Self Study)	2	Discussion	Google classroom
2.6	WiMAX, Mobile IP	2	Lecture	PPT& White board
UNIT -3 GSM				
3.1	Global System for mobile, communications	2	Chalk & Talk	Black Board
3.2	GSM Architecture, GSM Entities	3	Chalk & Talk	Black Board
3.3	Call routing in GSM, PLMN Interfaces	3	Lecture	PPT& White board
3.4	GSM Addresses and Identifiers, Network Aspects in GSM	3	Lecture	Smart Board
3.5	SMS: Mobile Computing over SMS, Short Message Service	1	Chalk & Talk	Black Board
3.6	Value Added Service through SMS	2	Discussio	Google

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	(Self Study)		n	classroom
UNIT -4 GPRS				
4.1	GPRS and packet data network	3	Chalk & Talk	Black Board
4.2	GPRS network architecture	3	Chalk & Talk	Black Board
4.3	GPRS network operations	3	Lecture	PPT& White board
4.4	Data services in GPRS	2	Lecture	Smart Board
4.5	Application for GPRS	2	Discussion	Black Board
4.6	Limitations (Self Study)	1	Discussion	Google classroom
UNIT -5CDMA and 3G				
5.1	Spread spectrum technology	3	Chalk &Talk	Black Board
5.2	CDMA vs. GSM	2	Chalk & Talk	Black Board
5.3	Wireless Data(Self Study))	1	Discussion	Google classroom
5.4	Third generation networks, Applications on 3G	2	Lecture	Smart Board
5.5	Information Security	3	Discussion	Black Board
5.6	Security Techniques & Algorithms.	3	Lecture	Smart Board
UNIT –6 DYNAMISM				
6.1	Business Intelligence (BI) Mobile Apps	2	Discussion	Black Board
6.2	IoT, Non-Removable Battery and Memory	3	Discussion	Black Board

INTERNAL - UG

Levels	C1 T1	C2 T2	C3 Quiz	C4 Assignment	C5 OBT/PPT	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment

	10 Mks.	10 Mks.	5 Mks.	5 Mks	5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

		Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the infrastructure to develop mobile communication systems.	K1& K2	PSO1& PSO2
CO 2	Identify the characteristics of different multiple access techniques in mobile communication.	K1& K2	PSO3
CO 3	Analyse the measures GSM systems and the entire protocol architecture of GSM.	K3 & K4	PSO4
CO 4	Understand the GPRS technologies and architecture for communication using Mobile Devices.	K1& K2	PSO3&PSO4
CO 5	Illustrate the Security issues in Mobile Computing.	K3 & K4	PSO6, PSO7 & PSO8

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1

CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
   ♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. T. CHARANYA NAGAMMAL**

Forwarded By

V. Mageshwari

HOD'S Signature

& Name

Skill Development 100%

III B.Sc. Information Technology

SEMESTER – VI

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I6ME5	INFORMATION STORAGE MANAGEMENT	Lecture	5	5

COURSE DESCRIPTION

This course provides a comprehensive understanding of the various storage infrastructure components in classic and virtual environments. It enables the students to make informed decisions in an increasingly complex IT environment.

COURSE OBJECTIVES

To impart the comprehensive understanding of all segments of Storage Technologies.

UNITS

UNIT –I STORAGE SYSTEM   (14HRS.)

Introduction to Information Storage and Management: Information storage – Evolution of Storage Architecture – Data Center Infrastructure – Virtualization and Cloud Computing – Data Center Environment: Application – DBMS – Host – **Connectivity (Self Study).**

UNIT –II DATA PROTECTION   (14 HRS.)

RAID: RAID Implementation methods – RAID Array Components – RAID Techniques – RAI levels.Intelligent Storage System: Components of an Intelligent Storage System – **Storage Provisioning (Self Study).**

UNIT –III STORAGE NETWORKING TECHNOLOGIES   (14 HRS.)

Fibre Channel Storage area Networks: Fibre Channel: Overview - The SAN

and Its Evolution – Components of FC SAN – Network Attached Storage: General Purpose Servers Vs NAS Devices – Benefits of NAS – **File System and Network File Sharing (Self Study)**– Components of NAS.

UNIT –IV BACKUP, ARCHIVE AND REPLICATION   (14 HRS.)

Backup and Archive: Backup Purpose – Backup Considerations – Backup Granularity - Recovery Considerations – Backup Methods – Backup Architecture – Backup and Restore Operations – **Data Archive(Self Study)** – Archiving Solution Architecture

UNIT –V SECURING AND MANAGING STORAGE INFRASTRUCTURE (14 HRS.)

Securing the Storage Infrastructure: Information Security Framework – Risk Triad- Storage Security Domains-Security implementation in storage networking- Managing the Storage infrastructure: **Monitoring the Storage Infrastructure(Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Latest storage device (Cloud, SSD(solid-state drive), NVMe (Non-Volatile Memory Express).

TEXT BOOK:
1. Somasundaram, Gnanasundaram, and AlokShrivastava, eds. Information storage and management: storing, managing, and protecting digital information in classic, virtualized, and cloud environments. John Wiley & Sons, 2012.Chapters - 1.1 – 1.4, 2.1 – 2.4, 3.1-3.4, 4.1- 4.2, 5.1-5.3, 7.1-7.4, 10.1 – 10.7, 10.13, 10.14, 14.1 – 14.3, 15.1

REFERENCES:
1. Robert Spalding, "Storage Networks " The Complete Reference, Tata McGraw Hill, 2003
2. Marc Fairley, "Building Storage Networks", Tata McGraw Hill, 2001

WEB REFERNCES :
1. Management Information System Tutorial
   https://www.tutorialspoint.com/management_information_system/index.htm

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 STORAGE SYSYEM				
1.1	Introduction to Information Storage and Management: Information storage	3	Chalk & Talk	Black Board
1.2	Evolution of Storage Architecture	3	Chalk & Talk	LCD
1.3	Data Center Infrastructure, Virtualization and Cloud Computing	3	Lecture	PPT& White board
1.4	Data Center Environment: Application DBMS, Host	3	Lecture	Smart Board
1.5	Connectivity (Self Study)	2	Discussion	Black Board
UNIT -2 DATA PROTECTION				
2.1	RAID: RAID Implementation methods, RAID Array Components	4	Lecture	PPT& White board
2.2	RAID Techniques – RAID levels	4	Lecture	PPT& White board
2.3	Intelligent Storage System: Components of an Intelligent Storage System	4	Discussion	Black Board
2.4	Storage Provisioning (Self Study)	2	Discussion	Black Board
UNIT -3 STORAGE NETWORKING TECHNOLOGIES				
3.1	Fibre Channel Storage area Networks: Fibre Channel- Overview	2	Chalk & Talk	Black Board
3.2	The SAN and Its Evolution	2	Discussion	Google classroom
3.3	Components of FC SAN	2	Lecture	Black Board
3.4	Network Attached Storage: General Purpose Servers Vs NAS Devices	3	Lecture	PPT& White board
3.5	Benefits of NAS	2	Chalk & Talk	Black Board
3.6	File System and Network File Sharing (Self Study)	1	Discussion	Google classroom

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.7	Components of NAS	2	Chalk & Talk	Black Board
UNIT – 4 BACKUP, ARCHIVE AND REPLICATION				
4.1	Backup and Archive: Backup Purpose	2	Lecture	Black Board
4.2	Backup Considerations, Backup Granularity	2	Chalk & Talk	Black Board
4.3	Recovery Considerations, Backup Methods	2	Lecture	Black Board
4.4	Backup Architecture	2	Chalk & Talk	Black Board
4.5	Backup and Restore Operations	2	Discussion	Google classroom
4.6	Data Archive (Self Study)	2	Lecture	PPT& White board
4.7	Archiving Solution Architecture	2	Discussion	Google classroom
UNIT -5 SECURING AND MANAGING STORAGE INFRASTRUCTURE				
5.1	Securing the Storage Infrastructure: Information Security Framework	5	Lecture	Black Board
5.2	Risk Triad- Storage Security Domains	5	Lecture	PPT& White board
5.3	Managing the Storage infrastructure	3	Chalk & Talk	Black Board
5.4	Monitoring the Storage Infrastructure (Self Study)	1	Discussion	Google classroom
UNIT –6 DYNAMISM				
6.1	Cloud, SSD(solid-state drive)	2	Discussion	Black Board
6.2	NVMe (Non-Volatile Memory Express	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1	T2	Quiz	Assignment	OBT/PPT				

	10 Mks.	10 Mks.	5 Mks.	5 Mks	5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

		Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

*** The best out of two will be taken into account**

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Know the concepts of Storage and Data structure Environment based on growth and challenges in IT.	K1& K2	PSO1& PSO2
CO 2	Understand data protection by using related and recent techniques.	K1& K2	PSO1& PSO2
CO 3	Identify the parameters of managing and monitoring the storage infrastructure and manage the solutions.	K1, K2 & K3	PSo3 & PSO4
CO 4	Know backup and archival data in both classic and virtualized environment.	K1& K2	PSO6
CO 5	Analyze, Monitoring and managing the storage infrastructure in cloud environments.	K3& K4	PSO7 & PSO8

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2

CO5	2	2	2	2	2	3	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1
CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
    ♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. T. CHARANYA NAGAMMAL**

Forwarded By

V. Mageshwari

HOD'S Signature

& Name

Skill Development 100%

III B.Sc. Information Technology
SEMESTER – VI
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	19I6ME6	COMPUTER GRAPHICS	Lecture	5	5

COURSE DESCRIPTION

This course is designed to facilitate to understand, design and implementation of pictorial data and will make the students to be a successful Graphics programmer.

COURSE OBJECTIVES

To impart the core concepts of computer graphics. Apply graphics techniques to design and create graphics patterns.

UNITS

UNIT –I INTRODUCTION   (14HRS.)

A survey of computer graphics: Computer-Aided Design - Presentation Graphics – **Computer Art – Entertainment – Education and Training(Self Study)** – Visualization – Image Processing – Graphical User Interfaces Overview of Graphics Systems: Video Display Devices – Raster Scan Systems – Random Scan Systems – Input Devices – Hard Copy Devices..

UNIT –II OUTPUT PRIMITIVES   (14 HRS.)

Output Primitives: Points and Lines – Line Drawing Algorithms – Circle Generating Algorithms – Filled Area primitives.

UNIT –III ATTRIBUTES OF OUTPUT PRIMITIVES   (14 HRS.)

Line Attributes – Curve Attributes(Self Study) – Color and Gray Scale Levels – Area Fill Attributes – Character Attributes – Bundled Attributes– Antialiasing

UNIT –IV TWO –DIMENSIONAL GEOMETRIC TRANSFORMATIONS   (14 HRS.)

Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations – Transformations Between Coordinate Systems

UNIT –V TWO –DIMENSIONAL VIEWING   (14 HRS.)

The Viewing Pipeline(Self Study) – Viewing Coordinate Reference Frame – Window –to- Viewport Coordinate Transformation – Two-Dimensional Viewing Functions – Clipping Operations – Point Clipping – Line Clipping – Polygon Clipping – Curve Clipping – **Text Clipping– Exterior Clipping(Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only)   (5 HRS.)

Current trends in Computer Graphics (Image-Based 3D Face Modeling, Holographic 3D Display System, Human Action Recognition Technology)

TEXT BOOK:

1. Hearn, Donald. Computer graphics, C version.Pearson Education India, 2012. Chapters: 1.1 – 1.8, 2.1-2.3, 2.5, 2.6, 3.1, 3.2, 3.5, 3.11, 4.1 – 4.8, 5.1 – 5.5, 6.1 – 6.11

REFERENCES:

1. Hughes, John F., et al. Computer graphics: principles and practice. Pearson Education, 2014.

2. McConnell, Jeffrey J. Computer graphics: theory into practice.Jones& Bartlett Learning, 2005.

3. Hill Jr, Francis S. Computer graphics using open gl. Pearson Education, 2008.

4. Newman, William M., and Robert F. Sproull.Principles of interactive computer graphics. McGraw-Hill, Inc., 1979.

OPEN EDUCATIONAL RESOURCES :

1. Computer Graphics Tutorial

   https://www.tutorialspoint.com/computer_graphics/index.htm

2. Computer Graphics Tutorial - Javatpoint

   https://www.javatpoint.com/computer-graphics-tutorial

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 A SURVEY ON COMPUTER GRAPHICS				
1.1	A survey of computer graphics:Computer-Aided Design	2	Chalk & Talk	Black Board
1.2	Presentation Graphics	1	Lecture	PPT& White board
1.3	Computer Art, Entertainment, Education and Training (Self Study)	1	Discussion	Google classroom
1.4	Visualization	2	Lecture	Black Board
1.5	Image Processing, Graphical User Interfaces	2	Chalk & Talk	Black Board
1.6	Video Display Devices	2	Chalk & Talk	Black Board
1.7	Raster Scan Systems, Random Scan Systems	2	Chalk & Talk	Black Board
1.8	Input Devices, Hard Copy Devices	2	Lecture	PPT& White board
UNIT -2 OUTPUT PRIMITIVES				
2.1	Points and Lines	3	Chalk & Talk	Black Board
2.2	Line Drawing Algorithms	4	Chalk & Talk	Black Board
2.3	Circle Generating Algorithms	4	Lecture	PPT& White board
2.4	Filled Area primitives.	3	Chalk &Talk	Black Board
UNIT -3ATTRIBUTES OF OUTPUT PRIMITIVES				
3.1	Line Attributes, Curve Attributes(Self Study)	2	Discussion	Google classroom
3.2	Color and Gray Scale Levels	3	Lecture	PPT& White board
3.3	Area Fill Attributes	3	Lecture	Black Board
3.4	Character Attributes	3	Chalk & Talk	Black Board
3.5	Bundled Attributes Antialiasing	3	Chalk & Talk	Black Board
UNIT -4TWO –DIMENSIONAL GEOMETRIC TRANSFORMATIONS				
4.1	Basic Transformations	2	Chalk &	Black

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
			Talk	Board
4.2	Matrix Representations	3	Lecture	PPT& White board
4.3	Composite Transformations	3	Lecture	Black Board
4.4	Other Transformations	3	Discussion	Google classroom
4.5	Transformations Between Coordinate Systems	3	Chalk & Talk	Black Board
UNIT -5TWO –DIMENSIONAL VIEWING				
5.1	The Viewing Pipeline, Viewing Coordinate Reference Frame	2	Chalk & Talk	Black Board
5.2	Window –to- Viewport Coordinate Transformation	2	Lecture	PPT& White board
5.3	Two-Dimensional Viewing Functions	2	Lecture	Black Board
5.4	Clipping Operations, Point Clipping, Line Clipping	3	Chalk & Talk	Black Board
5.5	Polygon Clipping , Curve Clipping	3	Chalk & Talk	Black Board
5.6	Text Clipping, Exterior Clipping (Self Study)	2	Discussion	Google classroom
UNIT –6 DYNAMISM				
6.1	Image-Based 3D Face Modeling, Holographic 3D Display System	2	Discussion	Black Board
6.2	Human Action Recognition Technology	3	Discussion	Black Board

INTERNAL - UG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1	T2	Quiz	Assignment	OBT/PPT				
	10 Mks.	10 Mks.	5 Mks.	5 Mks	5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	-	9	-	9	22.5 %
K3	3	3	-	-	5	11	-	11	27.5 %

Level									
K4	3	3	-	5	-	11	-	11	27.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - UG

Levels	Section A (i) 5 Mks.	Section A (ii) 5 Mks	Section B 8 Mks.	Section C 12 Mks	Section D 20 Mks.	Section E 10 Mks.	Total 60Mks.	
K1	5	5	-	4	-	-	14	23.33 %
K2	-	-	8	4	-	-	12	20 %
K3	-	-	-	-	20	-	20	33.33 %
K4	-	-	-	4	-	10	14	23.34 %
Total	5	5	8	12	20	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	1	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Quiz	2 *	-	5 Mks
C6	-	Attendance		-	5 Mks

The best out of two will be taken into account

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the need and concepts of computer graphics.	K1& K2	PSO1& PSO2
CO 2	Describe the procedure for points, lines and Circle.	K1& K2	PSO3
CO 3	Analyze various attributes of output primitives.	K3& K4	PSO3
CO 4	Illustrate two-dimensional geometric transformation.	K3& K4	PSO3& PSO6
CO 5	Analyze windowing and clipping concepts.	K3& K4	PSO6, PSO7 & PSO8

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	2	3	2	2	2	2	2	1
CO3	2	2	2	3	2	2	2	2
CO4	2	2	3	2	2	2	2	2
CO5	2	2	2	2	2	3	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	1	1	1
CO2	1	1	3	1

CO3	1	2	1	3
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
          ♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Staff Name: MRS. T. CHARANYA NAGAMMAL**

Forwarded By

[signature]

V. Mageshwari

HOD'S Signature

III B.Sc.

SEMESTER – VI

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I6SB5	ADVANCED HTML5	Practical	2	2

COURSE DESCRIPTION

This paper is designed to understand the principles of creating an effective web page, including an in-depth consideration of information architecture.

COURSE OBJECTIVES

To impart the creation of Web pages using the HTML5 structure elements, embed video and audio, and develop cross-browser user-input forms.

UNITS

UNIT –I Using Advanced CSS3 Techniques   (6HRS.)

Introduction to Advanced CSS3 techniques – CSS3 2D & 3D transformation –

CSS3 Transitions – CSS3 Animations – User Interfaces – Creating Buttons and Menus

UNIT –II JavaScript in HTML5   (6 HRS.)

Embedding Javascript in HTML5 documents – Objects, Properties , Method – Variables –Expression & Operators – Javascript Functions – Defining a Function – Calling a function – Method as Function - Errors in Javascript

UNIT –III Using HTML5 API   (6 HRS.)

Document Object Model – Common HTML APIs – The Canvas API – The Offline Apache API – Geolocation API – File API – Drag & Drop API – Retrieving data with XMLHttp request.

UNIT –IV HTML5 FORMS   (6 HRS.)

Introduction to HTML5 forms - Cross-Browser Compatible HTML5 Forms – HTML5 Form Input Types – New Form Elements in HTML5 – Global Attributes for Form elements.

UNIT –V VALIDATING HTML5 FORMS   (6 HRS.)

Improving Forms with HTML5 - HTML5 Attributes for the <form> Element - HTML5 Attributes for the <input> Element – Submitting forms with <button> elements - Validating User Input with HTML5 Attributes - Validating User Input with JavaScript.

PROGRAM LIST

1. Embedding video with the HTML5 <video> element

2. Embedding video with the HTML5 <audio> element

3. Using the JavaScript *alert()* method

4. Using the JavaScript *prompt()* method

5. Using the JavaScript *document.write()* method

6. Using the HTML5 Canvas API.

7. Using the HTML5 File API.

8. Using the HTML5 Drag & Drop API

9. Using the Geolocation API to obtain geographical information.

10. Creating an offline Web application with HTML5

REFERENCES:

1. HTML5 and CSS3 – Elizabeth Castro & Bruce Hyslop, Seventh Edition, Visual Quick Start Guide.

OPEN EDUCATIONAL RESOURCES :

1. https://ptgmedia.pearsoncmg.com/images/9780321719614/samplepages/0321719611.pdf

2. https://books.goalkicker.com/HTML5Book/

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 USING ADVANCED CSS3 TECHNIQUES				
1.1	Introduction to Advanced CSS3 techniques	2	Demonstration	Desktop PC
1.2	CSS3 2D & 3D transformation CSS3 Transitions	1	Demonstration	Desktop PC
1.3	CSS3 Animations, User Interfaces	2	Demonstration	Desktop PC
1.4	Creating Buttons and Menus	1	Demonstration	Desktop PC

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -2 JAVASCRIPT IN HTML5				
2.1	Embedding Javascript in HTML5 documents, Objects, Properties , Methods	2	Demonstration	Desktop PC
2.2	Variables, Expression & Operators	1	Demonstration	Desktop PC
2.3	Javascript Functions, Defining a Function, Calling a function	2	Demonstration	Desktop PC
2.4	Method as Function - Errors in Javascript	1	Demonstration	Desktop PC
UNIT -3 USING HTML5 API				
3.1	Document Object Model, Common HTML APIs	1	Demonstration	Desktop PC
3.2	The Canvas API – The Offline Apache API – Geolocation API	2	Demonstration	Desktop PC
3.3	File API ,Drag & Drop API	2	Demonstration	Desktop PC
3.4	Retrieving data with XMLHttp request.	1	Demonstration	Desktop PC
UNIT -4 HTML5 FORMS				
4.1	Introduction to HTML5 forms, Cross-Browser Compatible HTML5 Forms	2	Demonstration	Desktop PC
4.2	HTML5 Form Input Types – New Form Elements in HTML5	2	Demonstration	Desktop PC

Modul e No.	Topic	No. of Lecture s	Teaching Pedagogy	Teaching Aids
4.3	Global Attributes for Form elements.	2	Demonstratio n	Desktop PC
UNIT -5 VALIDATING HTML5 FORMS				
5.1	Improving Forms with HTML5, HTML5 Attributes for the <form> Element, HTML5 Attributes for the <input> Element	2	Demonstratio n	Desktop PC
5.2	Submitting forms with <button> elements , Validating User Input with HTML5 Attributes	2	Demonstratio n	Desktop PC
5.3	Validating User Input with JavaScript	2	Demonstratio n	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSE D
CO 1	Understand advanced techniques in CSS3.	K2 & K3	PSO1& PSO2
CO 2	Identify to adding videos and	K2 & K3	PSO3

	graphics with html5.		
CO 3	Identify building web page layouts with CSS& HTML5 APIs.	K2 & K3	PSO3 & PSO6
CO 4	Developing forms with advanced GUI interface.	K2 & K3	PSO1& PSO2
CO 5	Validating Forms in the web.	K2 & K3	PSO7 & PSO8

Mapping COs Consistency with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	1	1	3	2	2	2	2	1
CO3	1	2	3	1	2	3	2	2
CO4	3	3	3	2	2	3	2	2
CO5	1	2	1	1	1	1	3	3

Mapping of COs with Pos

CO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	1	1	1	1	1	2
CO2	1	1	1	1	3	1	1
CO3	1	3	1	1	1	3	1
CO4	1	1	1	1	3	1	3
CO5	1	1	1	1	1	3	1

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**
♦WeaklyCorrelated -**1**

COURSE DESIGNER:

1. **Staff Name: Mrs. T. CHARANYA NAGAMMAL**

Forwarded By

HOD'S Signature
& Name

III B.Sc.
SEMESTER – VI
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
USIT	23I6SB6	FUNDAMENTALS OF ANDROID PROGRAMMING	Practical	2	2

COURSE DESCRIPTION

This course introduces to learn basic Android programming concepts and build a variety of apps by using the concepts Android Architecture Components.

COURSE OBJECTIVES

To facilitate the student to understand the Mobile Application Programming sequence.

UNITS

UNIT –I INTRODUCING ANDROID STUDIO   (6HRS.)

Installing the Java Development Kit on Windows–Installing Android Studio

Creating First Android Project - Using Android Virtual Device Manager

UNIT –II NAVIGATING ANDROID STUDIO   (6 HRS.)

The Editor – The Gutter – Navigation Tool Windows – Navigation tool Windows – The Project Tool Window – The Structure Tool Window - The Main Menu Bar

UNIT –III PROGRAMMING IN ANDROID STUDIO   (6 HRS.)

Using code Folding – Performing Code Completion – Commenting Code –

Using Code Generation – Constructors – Override Methods –toString Method

UNIT –IV CREATING APPLICATIONS   (6 HRS.)

Introducing the application Manifest File – Using the Manifest Editor – Introducing Layouts.

UNIT –V FILES, SAVING STATE AND PREFERENCES   (6 HRS.)

Saving simple Application data – Creating and saving Shared Preferences – Retrieving shared Preferences.

PROGRAM LIST

1. To study Android Studio and android studio installation.
2. To understand Activity, Intent, Create sample application.
3. To design simple GUI application with activity and intents e.g. calculator.
4. To write an application that draws basic graphical primitives on the screen
5. Create an android app for database creation

REFERENCES:

1. Learn Android Studio –Adam Gerber, Clifton Craig-Apress.
2. Android Application Development – Reto Meier.

OPEN EDUCATIONAL RESOURCES :

1. http://yuliana.lecturer.pens.ac.id/Android/Buku/professional_android_4_application_development.pdf
2. https://www.tutorialspoint.com/android/android_tutorial.pdf
3. http://barbra-coco.dyndns.org/student/learning_android_studio.pdf

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 INTRODUCING ANDROID STUDIO				
1.1	Installing the Java Development Kit on Windows	2	Demonstration	Desktop PC
1.2	Installing Android Studio	1	Demonstration	Desktop PC
1.3	Creating First Android Project	1	Demonstration	Desktop PC
1.4	Using Android Virtual Device Manager	1	Demonstration	Desktop PC
UNIT -2 NAVIGATING ANDROID STUDIO				
2.1	The Editor ,The Gutter	2	Demonstration	Desktop PC
2.2	Navigation tool Windows	1	Demonstration	Desktop PC
2.3	The Project Tool Window	2	Demonstration	Desktop PC
2.4	The Structure Tool Window The Main Menu Bar	1	Demonstration	Desktop PC
UNIT -3 PROGRAMMING IN ANDROID STUDIO				
3.1	Using code Folding – Performing Code Completion	1	Demonstration	Desktop PC

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.2	Using Code Generation	1	Demonstration	Desktop PC
3.3	Commenting Code Constructors	1	Demonstration	Desktop PC
3.4	Override Methods – toString Method	1	Demonstration	Desktop PC
UNIT -4 CREATING APPLICATIONS				
4.1	Introducing the application Manifest File —	2	Demonstration	Desktop PC
4.2	Using the Manifest Editor	2	Demonstration	Desktop PC
4.3	Introducing Layouts	2	Demonstration	Desktop PC
UNIT -5 FILES,SAVING STATE & PREFERENCES				
5.1	Saving simple Application data	1	Demonstration	Desktop PC
5.2	Creating and saving Shared Preferences	1	Demonstration	Desktop PC
5.3	Retrieving shared Preferences	1	Demonstration	Desktop PC

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Able to Install Java Development Toolkit.	K2 & K3	PSO1& PSO2
CO 2	Install and configure Android application development tools	K2 & K3	PSO2 &PSO3
CO 3	Design and develop user Interfaces for the Android platform.	K2 & K3	PSO2, PSO3&PSO7
CO 4	Identify the Application & Layouts Concepts.	K2 & K3	PSO2, PSO3 &PSO7
CO 5	Save state information across important operating system events.	K3 & K4	PSO7& PSO8

Mapping COs Consistency with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	3	2	2	2	1	1	1
CO2	1	3	3	2	2	2	2	1
CO3	1	3	3	1	2	2	3	2
CO4	2	3	3	2	2	1	3	2
CO5	1	2	1	1	1	1	3	3

Mapping of COs with Pos

CO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	1	1	1	1	1	3
CO2	1	1	1	3	2	1	1
CO3	1	3	1	1	1	3	1
CO4	1	1	3	1	1	1	3
CO5	1	1	1	1	1	3	1

Note: ♦ Strongly Correlated – **3**   ♦ModeratelyCorrelated – **2**
♦WeaklyCorrelated -**1**

COURSE DESIGNER:

Staff Name: Mrs.T.Charanya Nagammal

Forwarded By

HOD'S Signature
& Name

I B.Sc. Information Technology
SEMESTER –I
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	HRS/WEEK	CREDITS
USIT	21I1SLK1	TRENDS IN INFORMATION TECHNOLOGY	-	2

COURSE DESCRIPTION

The new trends and disruptive technologies in IT (Information Technology) emphasis is given to the way technologies create a competitive edge and generate business value. This year the course will have a special emphasis in cloud computing, artificial intelligence, internet of things, and big data.

COURSE OBJECTIVES

To impact the knowledge about the recent trends in IT

UNITS

UNIT –I E-COMMERCE INTRODUCTION

E-commerce Infrastructure: Introduction, E-commerce Infrastructure-An Overview, Hardware, Server Operating System, Software, Network Website

UNIT –II MANAGING THE E-ENTERPRISE

Managing the e-Enterprise: Introduction, e-Enterprise, Managing the e-Enterprise, E-business Enterprise, Comparison between Conventional Design and E-organisation, Organisation of Business in an e-Enterprise

UNIT –III TRANSACTION PROCESSING SYSTEMS

Transaction Processing Systems - Features of TPS -**E-World:** Features Of E-Commerce - Importance Of E-Commerce - Types of Electronic Commerce -

E-Commerce Activities -E-Learning - E-Banking - E-Governance -
E-Agriculture- E-Logistics..

UNIT –IV TYPES OF WIRELESS SERVICES

Benefits - Working of Biometric Systems – Uses – Types - **RFID:**
Components - Working of RFID - Advantages. Embedded Systems –
UAV(Unmanned Aerial Vehicle) - GPS - 3G - 4G - 5G - Wi-Fi - Wi-Max –
Bluetooth- Infrared Communication - Firewall - Data Security and
Cryptography - Parallel and Distributed Computing – VLSI - Smart Card.

UNIT –V BIG DATA

Knowledge Management – CRM - BPO – KPO – NLP - Artificial Intelligence
-Big data - Big data Analytics – Cloud – Mobile - Internet of things - Image
Processing - Nano technology - Semantic web - Social media - Soft
Computing -Speech Recognition - Virtual Reality and Augmented reality -
Third Eye: A Shopping Assistant for the Visually Impaired - Machine
Learning - Neural Network.

UNIT –VI DYNAMISM(for CIA only)

Applications of wireless services

TEXT BOOK:
1) Peter Nortorn‟s, “ Introduction to Computer”, TMH, 2004,
ISBN-0-07-05-3142-0
2) ChetanShrivastava“ Fundamentals of Information Technology”, Kalyani
publishers, 2002,
ISBN-81-7663-576-6
3) DrMadhulikaJain,“Information Technology Concept”, BPB,2006,ISBN –
81-7656-276-9
4) Alexis and Mathews Leon, “Fundamentals of Information Technology”,
Leon Press, ISBN
:8182090105
5) Verma,“Computer, Internet & Multimedia – Dictionary”, Universities Press

REFERENCE BOOKS:
1) Suresh K. Basandra, Computers Today, Galgotia Publications Pvt Ltd.,
   New Delhi.
2) Computer Applications In Business, R. Parameswaran

3) ITL Education Solutions Limited, Introduction to Information Technology,PearsonEducation,New Delhi.
4) Perry, P.J., Worldwide Web secrets, Comdex Publishing, New Delhi..
5) Davis,Gordon.B, and Olson, Malgrethe H., Management Information systems, Mcgraw Hill Book company
6) Emerging Trends in Information Technology, Mrs. Jigisha D. Pardesi
7) Textbook of Emerging Trends in Information Technology Paperback – 2011,by Ravi P Patki
8) E-world: Emerging Trends in Information Technology.by ArpitaGopal&Chandrani Singh
9)

Digital Open Educational Resources (DOER) :.

1. https://www.tutorialspoint.com/fundamentals_of_science_and_technology/information_technology.htm
2. https://www.tutorialspoint.com/fundamentals_of_science_and_technology/information_technology.htm

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	To understand how virtualization improves cloud computing and common standards for cloud.	K1	PSO1
CO 2	Understand different cloud platforms, application and programming support for it.	K1, K2,	PSO2
CO 3	Understand Big Data primitives	K1 & K3	PSO5
CO 4	Understand and demonstrate Big Data processing skills by developing applications	K1, K2, K3 &	PSO4
CO 5	Understand the applications & impact of big data technologies	K2 & K4	PSO3

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	3	1	2	2	2	1	1	1
CO2	1	3	1	2	2	2	2	1
CO3	1	2	1	1	3	2	2	2
CO4	1	1	1	3	2	1	2	2
CO5	1	2	3	1	1	1	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	1	1	1	1
CO2	1	1	1	1
CO3	1	3	1	1
CO4	1	1	1	1
CO5	1	1	1	1

Note: ♦ Strongly Correlated – **3** ♦ Moderately Correlated – **2**
♦ Weakly Correlated -**1**

V. Mageshwari

HOD'S Signature

& Name

Employability 100%

II B.Sc. Information Technology
SEMESTER – III
For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	HRS/ WEEK	CREDITS
USIT	21I2SL1	GREEN COMPUTING	-	2

COURSE DESCRIPTION

The course content plays a vital role in making the students to understand the basic concepts in Green Computing.

COURSE OBJECTIVES

To facilitate the student to learn the fundamentals of Green Computing and to understand the issues related with Green compliance

UNITS

UNIT –I INTRODUCTION

Green IT Fundamentals - Business, IT, and the Environment – Green computing: carbon foot print, scoop on power – Green IT Strategies: Drivers, Dimensions, and Goals – Environmentally Responsible Business: Policies, Practices, and Metrics.

UNIT –II GREEN ASSETS AND MODELING

Green Assets: Buildings, Data Centers, Networks, and Devices – Green Business Process Management: Modeling, Optimization, and Collaboration – Green Enterprise Architecture – Environmental Intelligence – Green Supply Chains – Green Information Systems: Design and Development Models.

UNIT –III GRID FRAMEWORK

Virtualization of IT systems – Role of electric utilities, Telecommuting, teleconferencing and teleporting – Materials recycling – Best ways for Green

PC – Green Data center – Green Grid framework.

UNIT –IV GREEN COMPLIANCE

Socio-cultural aspects of Green IT – Green Enterprise Transformation Roadmap – Green Compliance: Protocols, Standards, and Audits – Emergent Carbon Issues: Technologies and Future.

UNIT –V CASE STUDIES

The Environmentally Responsible Business Strategies (ERBS) – Case Study Scenarios for Trial Runs – Case Studies – Applying Green IT Strategies and Applications to a Home, Hospital, Packaging Industry and Telecom Sector.

UNIT –VI DYNAMISM (for CIA only)

Case study review

TEXT BOOK:
1) Bhuvan Unhelkar, ―Green IT Strategies and Applications-Using Environmental Intelligence, CRC Press, June 2014.
2) Woody Leonhard, Katherine Murray, ―Green Home computing for dummies, August 2012.

REFERENCE BOOKS:
1) Alin Gales, Michael Schaefer, Mike Ebbers, ―Green Data Center: steps for the Journey, Shroff/IBM rebook, 2011.

2) John Lamb, ―The Greening of IT, Pearson Education, 2009.

3) Jason Harris, ―Green Computing and Green IT- Best Practices on regulations & industry, Lulu.com, 2008

4) Carl speshocky, ―Empowering Green Initiatives with IT, John Wiley & Sons, 2010.

5) Wu Chun Feng (editor), ―Green computing: Large Scale energy efficiency, CRC Press

Digital Open Educational Resources (DOER) :.

1) https://www.tutorialspoint.com/environmental_studies/environmental_studies_towards_sustainable_future.htm

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Acquire knowledge to adopt green computing practices to minimize negative impacts on the environment.	K1	PSO3
CO 2	Enhance the skill in energy saving practices in their use of hardware.	K1, K2	PSO3
CO 3	Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders.	K1 & K3	PSO3
CO 4	Explain issues related to green compliances.	K1, K2, K3	PSO6
CO 5	Understand the ways to minimize equipment disposal requirements	K1 & K3	PSO6

V. Mageshwari

HOD'S Signature
& Name

III B.Sc. Information Technology
SEMESTER –V
For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS	CREDITS
USCA	21J5SL1 1	DATA SCIENCE AND TOOLS	PRACTICAL	-	2

COURSE DESCRIPTION

This course gives basic understanding about big data analytics using R language and to disseminate knowledge in cutting edge technologies to store and visualize huge data.

COURSE OBJECTIVES

1. Recognize the essential notion of data science
2. Examine the Tools and skills of a data scientist
3. Figure out the working of R Tool

UNITS

UNIT I : DATA SCIENCE AND DATA SCIENTISTS

Introduction – Need of Data Science – Business Intelligence Vs Data Analysis – Features – Life Cycle – Discovery – Data Preparation – Model Planning – Model Building – Operationalize – Communicate Results – Who are Data Scientists? – Skills needed for Data Scientists

UNIT II : TOOLS FOR DATA SCIENCE

EXCEL – R Tool - Apache Hadoop – BigML – SaS – MATLAB – WEKA – Tableau – QlikView

UNIT III : R TOOL

Startup – The Workspace – Variable – Constants – Data Types – R Operators

UNIT IV : R STATEMENTS AND FUNCTIONS

Control Statements – If – If.. Else – Switch – Looping Statements – Functions – Strings

UNIT V : R INTERFACES AND VISUALIZATION

CSV Files – Excel Files – XML Files – R Database – Pie Chart – Bar Chart – Histograms – Line Graphs – Statistical Display of Results

WEB REFERENCES :

https://data-flair.training/blogs/data-science-tools/

OER REFERENCES :

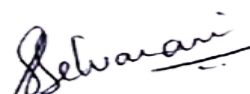https://github.com/chaconnewu/free-data-science-books

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Foresee the life cycle of data science and the skills of data scientists.	K1	PSO1& PSO2
CO 2	Compare the pros and cons of the tools of data science	K1, K2	PSO2, PSO3
CO 3	Analyze the methodologies R Tool	K1 & K3	PSO3, PSO5

CO 4	Implement the programming erect of R.	**K1, K2 & K3**	**PSO5, PSO8**
CO 5	Design the code for the problems related to data science using R	**K3 & K4**	**PSO8**

Forwarded By

Selvarani

(S.Selvarani)

HOD'S Signature & Name